Chapter 5
Comments and Responses

5.0 Comments and Responses

5.1 Introduction

The public comment period for the *Timbered Rock Fire Salvage and Elk Creek Watershed Restoration Draft Environmental Impact Statement* (DEIS) began August 15, 2003 and ended October 15, 2003. Documents were mailed to 112 individuals, businesses, groups, organizations, libraries, elected officials, and government agencies. The DEIS was available at local and university libraries and on the BLM Timbered Rock website.

5.2 Public Comments

A total of 23 comments were received in the form of e-mails, postcards, faxes, and letters. One letter, received after the close of the comment period, was included for analysis.

All letters were assigned a unique identification number in the order of receipt. This number allows for the tracking of specific comments back to the original letter.

Letters were read and substantive comments were highlighted. Each comment was assigned a unique comment number for tracking. A comment code was assigned to group similar comments. Comment codes were based on the subject of the comment in relation to the document. All coded comments were entered verbatim into a comment database. Comments were sorted by comment code. Some comments contained unique concerns and were treated as a solitary comment statement. Similar comments contained in multiple letters were grouped into one comment statement. Each coded comment can be tracked from the original comment number to the comment as it appears in this document. The comment number referenced in the Comment and Response section is the assigned comment number. More than one comment number indicates similar comments were combined for one response.

All letters were treated equally. No preference was given to number, organizational affiliation, or other status of the respondent.

Comments and responses are intended to be explanatory in nature. If there are any inadvertent contradictions between the FEIS and a response, the FEIS prevails.

5.3 Demographics

Information on each respondent was entered into a project-specific database. Information tracked included the repondent's name, address, method of response, and organizational affiliation.

Table 5.3-1 displays the number of responses by organization type.

Table 5.3-1. Number of Responses by Organization Type

Organization Type	Number of Responses
Individual/Unaffiliated	13
Federal Agency/Elected Official	1
Timber or Wood Products Industry	1
Environmental Organization	6
School/University	2

Comment letters were received from the following areas: 12 from Southern Oregon (Medford, White City, Gold Hill, Williams, Cave Junction, and Ashland), 5 from California, 1 from Washington, 1 from an unknown location, and 1 each from Portland, Eugene, Salem and Yoncalla, Oregon. All comment letters have been reproduced in Section 5.5.

5.4 Comments and Responses

One comment letter was received after the comment period closed. While many comments were duplicates, it did contain a few new substantive comments. Consequently, the comment letter was treated as if it had been received timely.

One comment letter included "my alternative." The suggested actions were based on reported burn severity and specific soils. Information was provided either on a unit or section basis. The suggestions were included in the "range of alternatives" analyzed in this EIS. Some of the suggestions were already included in the Preferred Alternative or have been incorporated into the Preferred Alternative based upon further field investigations.

Comments from Oregon Natural Resources Council were divided into two distinct parts. Comments from page one 1 to 18 were very specific to the Timbered Rock Fire Salvage and Elk Creek Watershed Restoration DEIS. Page numbers were frequently referenced and comments tracked easily back to the DEIS. However, comments on pages 19 through 51 (see Section 5.5) were very general in nature, did not reference any specific page number or passage or information contained in the DEIS, and often quoted information from various web sites. Additionally, these latter pages included a number of references to other agencies and documents which lead us to conclude these comments were not specific to the DEIS.

Following are some examples:

- Page 23 of 56 includes "The EA should have had a better discussion…"
  The referenced document should be this EIS.
- Page 28 of 56 includes "Please consider at least one non-commercial, restoration-only alternative…"
  That is the design focus of Alternative B in this EIS.
- Page 29 of 56 includes "Also, consider an alternative modeled on the recommendations of the Beschta report."
  This is the design focus of Alternative F.
- Page 38 of 56 includes "The Cub EA admits that 12.9 miles of road are… (EA at 39)…"
  The BLM assumes this is a reference to another document.
- Page 39 of 56 includes "The highest and best use of National Forest is for clean water, wildlife habitat…"
  The subject lands in this EIS are public lands administered by the Bureau of Land Management, not the US Forest Service.
- Page 45 of 56 includes "Salvage activities will further degrade a water quality listed streams such as the Little Malheur River."
  The "Little Malheur River" is not located in this project area.
- Page 45 of 56 includes "…reliance on speculative mitigation measures in order to reach a FONSI significantly compromised environmental quality…"
  A FONSI determination only applies to Environmental Assessments. Preparation of an EIS recognizes impacts are likely.

Other similar references are presented in pages 19 though 51. 40 CFR 1503.3 (a) addresses specificity of comments; "Comments on an environmental impact statement or on a proposed action shall be as specific as possible and may address either the adequacy of the statement or the merits of the alternatives discussed or both." Nevertheless, those general comments which appeared to apply to this EIS were treated as substantive comments and responded to appropriately.

5.4.1 Chapter 1

Comment 463: "To assess changes in late-successional habitat conditions within the Elk Creek LSR." This implies post fire implementation and effectiveness monitoring.

Response: Monitoring will be addressed in the Record of Decision. If approved, projects will be monitored to ensure they are implemented consistent with the decisions rendered through the Record of Decision. Effectiveness monitoring is normally accommodated through other means.

Comment 464: Indicators were not discussed with the issues or objectives. The DEIS needs an implementation and effectiveness monitoring section for each proposed action.

Response: Indicators are presented for major issues 1-7 (see Sections 1.5.2). Indicators do not seem appropriate for minor issues and objectives.

5.4.1.1 Purpose and Need

Comment 28: The BLM should, at a minimum, describe the targeted conditions over a given time frame and show how the alternative they adopt accomplishes the desired results.

Response: Targeted conditions are described in the South Cascades LSRA (USDA and USDI 1998. Chapter 4–Desired Future Condition), included in Appendix B in the FEIS, and the Elk Creek Watershed Analysis (USDA and USDI 1966, Chapter IV–Management Recommendations), included in Appendix C. Each project description in Chapter 2 and Appendix E includes a desired future condition. Tables 2-4 and 2-5 were added to the FEIS to show projected trends and consequences of stand-replacement areas and restoration projects.

Comment 277: Conducting destructive salvage operations in order to capturing commercial log value is inappropriate. This is an LSR, so the industry had no plausible expectation of benefit from these trees.

Response: Conducting "destructive" salvage operations is not proposed. The proposed salvage operations are consistent with the LSR objectives and the NFP guidelines for salvage. These guidelines state "Salvage guidelines are intended to prevent negative effects on late-successional habitat, while permitting some commercial wood volume removal" (DEIS, A-6). It could be concluded from this statement that the NFP anticipated some economic benefit from salvage activities in LSRs.

Comment 302: We believe the alternatives offered fail to meet the project purpose and need. [T]he proposed alternatives appear to place undue emphasis on one portion of one objective. That is, it appears an inordinate degree of emphasis was placed on a portion of objective 7 (i.e., recovery of economic value of fire-killed trees) without adequately addressing either the other element of that objective (i.e., meeting LSR and watershed objectives) or adequately addressing the other objectives.

Response: We disagree. The presented alternatives address all the objectives listed on page 1-6 of the DEIS. Each action alternative is divided into two sections, salvage and restoration. The reason there is a greater emphasis placed on salvage is because that is perceived as having the greatest effect and generates the most controversy. This is consistent with the Code of Federal Regulation (40 CFR 1502.14).

Comment 499: All fish populations would be aided by the removal of Elk Creek Dam.

Response: The removal of the Elk Creek Dam is outside the scope of this EIS.

Comment 69: Referring to the US Department of Energy guidelines, this EIS generally follows the recommended format. In the Purpose and Need section, the order in the section should follow the title. This document places the Need section prior to the Purpose section.

Response: Regulations at 40 CFR 1502.10 suggest a "recommended format" for EISs applies to all agencies. However some latitude is provided. The format used in the Timbered Rock EIS parallels that used in the *FEIS on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl*, as amended,

and the *Medford District Proposed Resource Management Plan/Environmental Impact Statement*. This EIS is tiered to those documents. "Need" is presented prior to the "Purpose" for clarity. The Timbered Rock Fire primarily created the need for this EIS and it was important for the reader to have that context first.

Comments 127 and 136: In a recent case the court determined that mere acknowledgement of contradictory science is insufficient, there must be some reasoned evaluation of the contradictory science. The BLM is required to address contradictory science, and explain why it has chosen to use the specified science.

Response: Section 1.2.3 in Chapter 1 addresses some of the scientific, emotional, and philosophical controversies regarding salvage of fire-killed trees. It is not possible to fully lay to rest these controversies. The EIS was designed to use the best science and management guidelines available and to assess the effect of retaining various levels of snags and coarse woody debris while meeting LSR objectives and salvaging some of the economic value of the fire-killed trees. These controversies were recognized in FEMAT, the NFP ROD, and the McIver and Starr report (2001). The Preferred Alternative, Alternative G includes potential research to respond to some of this controversy, such as varying levels of reforestation and the influences of salvage and salvage intensity on wildlife. Alternative F, based on the Beschta, et al. Report, results in little salvage, leaves high levels of snags and CWD, and causes few disturbances to fire-damaged soil. Alternative E represents a higher level of salvage.

Comment 19: The DEIS seems to exalt economic objectives above those of the LSR and its inhabitants. I do not see a size limit in Alternative G. I see new roads.

Response: The 9 objectives of the EIS are outlined in Section 1.3.1, Purpose. The only objective relating to economics is "Recover some economic value of fire-killed trees while meeting LSR and watershed objectives. (NFP and LSRA) (MMBF)" There is no size limit in Alternative G, however, only fire-killed trees are proposed for salvage. No new permanent roads would be built and temporary new roads would be decommissioned after use.

Comment 51: The most recent work by John Sessions (2003) at OSU concerning the management options on the Biscuit Fire would be an excellent work to site [sic] as reference to the choices the BLM might make in an improved Alternative "G". The BLM should employ the new Categorical Exclusion regulations for CE numbers 10, 11 (effective June 5, 2003) and CE numbers 12, 13, 14 (effective July 29, 2003). All of these tools give the agencies flexibility and direction outside the normal planning process to at least begin to address the huge fire potential that still exists in the Timbered Rock Fire perimeter and surrounding vegetation.

Response: Members of the Timbered Rock EIS team have reviewed the "Sessions Report" on the Biscuit Fire. In addition, team members have reviewed two recent reports by Jack Ward Thomas, Northwest Forest Plan Review, both dated in June 2003. All three of these documents question the sustainability of Late-Successional Reserves, particularly in southwest Oregon and northern California, as presently managed under the NFP. However, changing the management of LSRs is beyond the scope of this EIS. Nevertheless, Alternative G does implement some of the recommendations from the "Sessions Report" such as, use of aerial logging systems, reducing road construction, protecting key wildlife sites, stream protection, and also incorporates research to analyze some of the growing concerns. Categorical Exclusions 1.12, relating to hazardous fuels reduction, and 1.13, relating to post-fire rehabilitation, may be applied in the future as appropriate. The other cited CEs apply to the USFS, not to the BLM.

Comment 462: The first need mentioned is "to rehabilitate fire damaged landscape." The fact that major human intervention is necessary after a large fire is questionable. Fires are a natural part of the landscape in the LSR. The desire to accelerate the recovery process is understandable and sometimes necessary. However the extent to which the landscape must be managed is important to consider. To error on the conservative side seems appropriate.

Response: The EIS offers a wide range of alternatives at various management levels from what may be considered the "conservative side," such as Alternatives A, B, and F, to a moderate approach in Alternatives C, D, and G, to the more intensive management proposed in Alternative E.

Comment 161: In the DEIS the BLM must explain what the specific purpose and intent of the proposed research project is, and why it cannot be done in an AMA or other management unit.

Response: A memorandum dated May 12, 2003 from the RIEC provided clarification for research within an LSR (see Appendix A, LSR Guidance from NFP-ROD). The required assessment is included in Chapter 1 (Section 1.6) and the NEPA

compliance is contained in this EIS. The research will test assumptions relating to habitat use and development relating to birds and mammals and test reforestation techniques that can be applied to a variety of land use allocations. A critical part of the wildlife research is that it is designed prior to salvage operations rather than grafted onto a previously fire-salvaged landscape. This is also true of the reforestation research where similar plots will be located in salvaged and unsalvaged areas. The effects analysis is included in Section 3.4.3.

Research is not included in an AMA or other management unit (allocation) because the occurrence of the Timbered Rock Fire in an LSR provided an opportunity to conduct research. Since the mid-1980s, there have been a number of large fires within the Butte Falls Resource Area, Medford District, and in other parts of western Oregon where research could have been conducted but was not. The Butte Falls Field Manager recognized that research related to "fire effects" had not kept up with reported controversies. Scientists at OSU were contacted following the Timbered Rock Fire and asked to conduct an informal review of a few of these past fires and offer suggestions regarding identified objectives (see Appendix F, Report on Fire and Post-Fire Management Effects). The proposed research grew out of that analysis. While proposed research could be conducted in an AMA or Matrix allocations, the opportunity was presented as a result of the Timbered Rock Fire in the Elk Creek LSR. These undertakings do not preclude fire-related research in other land use allocations, or an expansion of research within the LSR as long as LSR objectives are met.

5.4.1.2 Legal Requirements

Comment 178: The draft spotted owl recovery plan (p 115) indicates that 17 of the largest Douglas fir and 9 of the largest hemlock snags per acre must be retained in the western Oregon Cascades.

Response: That recommendation from the 1992 Draft Recovery Plan was not carried forward into the Northwest Forest Plan, which serves as the BLM and USFS contribution to the recovery of the spotted owl. Appendix D, Table D-5 compares recommended Douglas-fir and white fir snag levels from recent, regionally-specific papers. Only the north end of the Timbered Rock project area contains hemlock.

Comments 322 and 536: Disclose the full amount of money spent complying with Boise Corps. ROW Agreements. Through what authority were the five miles of road built? Using CEs? Why was KS Wild not afforded an opportunity to comment on the location and construction of these roads? What happened to the trees that were located where the roads were built? Are these roads also to be used for BLM access to salvage logging units? Were any surveys (survey and manage, riparian reserve, NSO) completed pursuant to this road construction? Did these roads contribute to the attainment of the objectives of the Aquatic Conservation Strategy? How close were these roads to NSO activity centers? Road densities in the Elk Creek watershed have been increased, contrary to the stated policy: "[t]here is to be no net increase in the amounts of roads in key watersheds."

Response: The increase in road density on BLM-administered lands in the watershed resulted from the filing of plats under the Reciprocal Right-of-Way Agreement from adjacent landowners to facilitate access to private land. As stated in the Medford District RMP ROD page 6, "Valid existing rights may be held by other Federal, State or local government agencies or by private individuals or companies. Valid existing rights may pertain to mining claims, mineral or energy leases, rights-of-way, reciprocal rights-of-way, leases, agreements, permits and waters rights." The land allocation of 'Key Watershed' only applies to US Forest Service and BLM-administered lands. Furthermore, Alternative G proposes to decommission approximately 35 miles of road within the Elk Creek Watershed resulting in no net increase in amounts of roads on BLM lands. Surveys are conducted and mitigations applied, as appropriate.

Comment 367: As the proposed project may have impacts on Tribes, the FEIS should be developed in consultation with all affected tribal governments, consistent with Executive Order (EO) 13175 (Consultation and Coordination with Indian Tribal Governments). Documentation of these consultations should be included in the FEIS.

Response: A scoping letter was sent on January 28, 2003 to the following tribes; Affiliated Tribes of Northwest Indians, Cow Creek Band Of Umpqua Tribe, Columbia River Intertribal Fish Commission, Oregon Commission of Indian Services, Confederated Tribes of the Grande Ronde, Confederated Tribes of the Siletz, Coquille Indian Tribe, Klamath Tribe, Burns Paiute Tribe, Confederated Tribes, Warm Springs Reservation, and Confederated Tribes, Umatilla Indian Reservation. Of the previous groups, three requested a copy of the Draft EIS, which was sent August 15, 2003. This information has been added to Chapter 1 of the Final EIS.

Comment 368: The FEIS should improve its disclosure regarding the proposed project's compliance with the Executive Order (EO 13112) on invasive species.

Response: EO 13112 directs Federal Agencies to restrict the introduction of exotic species into ecosystems on lands owned or controlled by the federal government, and to "encourage" states, local governments and private citizens from introducing exotic species into natural ecosystems of the United States. All projects identified under this EIS, are screened and modified to include noxious weed management objectives.

Comment 525: Perhaps someone specializing in sediment transport, if not the hydrologist, and a firefighter would have been good additions to the team.

Response: Sediment transport is an important issue in this EIS. It has direct, indirect, and cumulative effects on a variety of resources. Specialists directly involved in analyzing sediment transport include the soil scientist, mass wasting specialist, hydrologist, and fisheries biologist. A number of team members are involved in fire fighting, prescribed fire management, and/or emergency stabilization and rehabilitation following a wildfire. Most team members have first hand knowledge of fire suppression or rehabilitation actions on the Timbered Rock Fire.

Comments 37 and 38: After large stand replacement fires like Timbered Rock, an alternative deploying herbicides should be shown in contrast to manual methods, so the public can see the long term consequences of these choices along with costs and time frames to establish a new forest.

Response: The BLM presently does not have legal authority to use herbicides for control of competing vegetation, only for control of noxious weeds. A Vegetative Management EIS is presently being prepared by the BLM (see http://www.blm.gov/weeds/VegEIS/ for more details). An opportunity for research may exist with adjacent landowners on private land to include herbicides and compliment the planned reforestation research proposed in the DEIS on federal land.

Comment 526: The main critique of the DEIS is its failing to mention that Elk Creek is a 303(d) listed creek. The Oregon Department of Environmental Quality (DEQ), as mandated by the federal Clean Water Act (CWA), has listed Elk Creek on its 303(d) list as an impaired water body for temperature and dissolved oxygen in the summer months. These water quality impairments present significant implications to threatened Coho salmon and other anadromous fish species within Elk Creek. As a result, the needs to improve water quality within the temperature impaired Elk Creek and to protect threatened species that are temperature sensitive were most likely not taken into consideration in the development of the purpose and need statement and the range of alternatives.

Response: The EIS states that Elk Creek is a 303(d) listed creek in Section 3.4.2.1, Water Quality, Temperature. It is also shown as a listed creek on Map 3-7: 303(d) listed streams.

Comment 150: The BLM is prohibited from incorporating materials in the DEIS not easily available to the public. The study of mass wasting in the Elk Creek Watershed conducted by the Boise Cascade Corporation is both referenced and relied on throughout the DEIS. This is exactly the type of incorporation that is prohibited.

Response: The subject material has been made available to those requesting the information. It is an excellent source document that focused on roads and sediment delivery to streams. It would be inappropriate to ignore a professionally prepared analysis specific to the Elk Creek Watershed.

Comment 153: The DEIS does not consider alternative science in this matter as required by NEPA. A well-circulated report suggests that logging in sensitive areas (e.g. recently burned areas), regardless of the logging method employed, is associated with accelerated soil erosion. This report is ignored during the treatment of soil erosion in the DEIS. NEPA requires that the BLM "disclose responsible scientific opinion in opposition to the proposed action, and make a good faith, reasoned response to it."

Response: It is assumed that part of the "opposing opinion" is the report by Beschta, et al. The Beschta Report is the basis for Alternative F and the BLM has made a good faith, reasoned response to it in this EIS.

Comment 314: Alternative G would provide for logging in the Elk Creek Late Successional Reserve. However, under the Northwest Forest Plan, logging can only occur in an LSR where more than 60% of the forest canopy has been killed. Alternative G also would allow for the logging of living trees as well as dead ones, despite the Northwest Forest Plan's prohibition of the taking of such live trees in an LSR. The NFP also calls for logged roadside hazard trees to be left in place.

Response: In Section 2.3.1.1, for area salvage, "Alternatives C, D, and G focus on high and moderate burn severity areas greater than 10 acres and less than 40 percent canopy closure." Additional description of Alternative G in Section 2.4.7 discusses salvage occurring in high and moderate severity areas greater than 10 acres. These areas typically are stand replacement areas with less than 40 percent canopy closure. Section 2.4.7 and Table 2-1 have been edited to include this detail and provide consistency with other alternative descriptions. The 'green-tree' logging included in Alternative G salvage proposal includes the potential need to remove green trees for access or logging feasibility.

The Standard and Guidelines of the NFP for salvage in Late-Successional Reserves (USDA and USDI 1994, C-15, guideline number 11) recognizes some green trees may need to be harvested to provide access for feasible logging operations (see Appendix A). Some restoration projects include "green-tree" logging. These projects are consistent with the S&Gs from the NFP and based on recommendations in the South Cascades LSRA. The NFP (USDA and USDI 1994, C-15, guideline #6) states, "In other areas, such as along roads, leaving material on site should be considered." The EIS team determined hazard trees should be left on site within Riparian Reserves and owl activity center with suitable owl habitat. In the remaining area it was determined there would be adequate levels of snags and CWD provided by the non-hazardous snags left along the roads and the snags and CWD left in the adjacent stands.

Comment 528: Salvage logging and watershed restoration activities should not be considered under the same DEIS because the purpose and need of each are quite different.

Response: This approach would be contrary to NEPA in a variety of ways, but particularly as it relates to cumulative effects analysis, reasonable foreseeable actions, public involvement, and reduction in paperwork (see 40 CFR 1500.4, 1502.2, 1502.14, 1508.7 as examples).

Comment 441: The reader is promised that a Water Quality Restoration Plan (WQRP) will be developed for the Elk Creek Watershed and will be included in the FEIS (DEIS 3-49). Would not a WQRP be helpful for developing and identifying a preferred alternative? How can the public incorporate the WQRP into comments if the plan is only released after substantive management decisions and direction have already been determined?

Response: The WQRP is based upon analyses contained in the EIS and is consistent with Alternative G. The WQRP is not a decision document but a submission to DEQ as part of the State TMDL process. Development of the WQRP represents active agency participation under the requirements of the Clean Water Act. The draft WQRP is included in Appendix I, Hydrology.

Comment 160: The BLM does not explain what standards and guidelines this project is designed to test. Nor does the BLM explain the necessity of clear-cutting within an LSR to support these tests.

Response: Research proposals are designed to test S&Gs of the NFP. "The Vegetation Dynamics and Fire Hazard in Experimental Mixed-species Restoration Plantings in Southwestern Oregon" Anderson, et al. research was designed to test the following LSR Standard and Guidelines: snag retention, control of competing vegetation, and spacing of planted seedlings. This research will provide new explicit information about the potential positive role of snag retention to moderate microsites and provide favorable post-fire regeneration opportunities. Control of competing vegetation (weeding) will be explicitly evaluated with respect to establishment of planted conifers. Given that rapid tree canopy development can shorten the time necessary for Late-Successional development, removal of competing shrubs may be necessary to ensure survival and initial growth of planted trees. Varying planting density (spacing) in combination with weeding will influence the extent and duration of shrub cover and the onset of conifer canopy recession. These dynamics will potentially have significant influence on timing and duration of fire risk and therefore fall under LSR S&Gs allowing silvicultural treatments to reduce the risk from fire, insects, disease or other environmental variables. The S&Gs tested by "Evaluation of the influences of salvage and salvage intensity on wildlife" Hayes, is outlined in the research proposal in Appendix G.

Comment 164: The standards and guidelines of the NFP state "management should focus on retaining snags that are likely to persist until late successional conditions have developed." Alternative G allows for only very minimal snag retention, 6 snags greater than 20 DBH per acre. (This does not fulfill the purpose and intent of the guidelines.)

Response: The LSRA (USDA and USDI 1998, 168) acknowledges that salvage in an LSR was recognized as a contentious issue in FEMAT. There is a discussion on salvage. The LSRA "approaches, criteria, and process considerations will eliminate the need for each interdisciplinary team to reconsider the philosophical debate concerning whether salvage is generically appropriate in LSR allocation, and instead concentrate on if and where salvage helps meet Plan and LSR objectives for a given stand replacement event" (USDA and USDI 1998, 168).

Salvage under Alternative G would leave 8-12 snags per acre in the salvage units. This is consistent with DecAID (see DEIS, Appendix D, D-29). On approximately 147 acres in the research units, 6 snags per acre would be left. This is consistent with DecAID recommendation for the Douglas-fir plant series.

Salvage would not occur in areas burned at high and moderate severity less than 10 acres in size and/or more than 40 percent canopy. These areas will have 100 percent of snags remaining. Snags would also be left in stands that burned with low and very low/unburned severities. Of 11,774 acres affected by the Timbered Rock Fire within the LSR on BLM-administered lands, approximately 10,400 acres would remain unsalvaged. DEIS Table 2-2, page 2-53 and 2-54, indicates that under Alternative G, 87 percent of the fire-killed trees would be retained in the salvage area. It also shows that 47 percent of the stand-replacement acres would not be salvaged. Information showing the distribution of trees by diameter class was added to the FEIS (see Figure 2.3-2). See response to comment numbers 142 and 143 in Section 5.4.3.3.

Comment 205: The so-called "brain book" that agency staff use to clarify the direction in the Northwest Forest Plan ROD urges the agency to use the requirements from the Draft Recovery Plan for the Northern Spotted Owl which requires retention of all scorched trees that "may live" as well as all snags over 20 inches because these live trees and larger snags are most likely to last more than 100 years and help to fill the temporal gap in snag recruitment as the post-fire stand develops.

Response: We are not aware of any handbook or manual referred to as the "brain book."

Comment 308: The Northwest Forest Plan LSR Standards and Guidelines regarding retention of live trees, felling and leaving hazard trees along roads, and criteria for when salvage is allowable are violated.

Response: The alternatives were designed to provide the decision maker with a "reasonable range of alternatives" (see Section 2.5). Table 2-2 addresses consistency with the NFP and the subsequent South Cascades LSRA. Memorandums contained in Appendix A address exemptions for research and complying with LSR objectives.

Comments 157 and 158: The NFP guidelines require that management following a stand-replacing event should be designed to accelerate or not impede the development of high quality habitat for species associated with late-successional forest conditions. The DEIS fails to explain how intensive salvage logging accomplishes these objective.

Response: Tables 2-2 and 2-3 address this issue. Tables 2-4 and 2-5 were added to the FEIS to show anticipated trends and consequences of projects proposed in Alternative G over time. The EIS makes no contention that intensive salvage logging would accelerate the development of high quality habitat. Alternative G was designed to not impede habitat for species associated with late-successional forest conditions. The environmental consequences described would reflect any impacts to these species. No additional information has been provided to alter these findings.

Comments 162 and 190: The standards and guidelines specifically caution that because there is much to learn about development of species associated with LSR and their habitat, that only, conservative amounts of salvage logging should be allowed. Alternative G fails to adhere to this principle and exercises no constraint or conservatism. Alternative G is the only alternative that allows for wholesale clear cutting in some areas. This is completely contrary to the NFP Standards and Guidelines "conservative salvage" approach to management.

Response: As shown in Figure 2.3-1 and 2.3-2 and Table 2-2, only a conservative amount of salvage material is being removed from the LSR. Only about 13 percent of the fire-killed trees, or 22 percent of the volume, will be removed. Also, the salvage prescription (based on DecAID Wood Advisor) requires retaining snags across size classes. A discussion of volume from the research units versus volume from implementing the Alternative G area salvage approach in the research units has been added to the FEIS (see Section 3.17.3.1, Economics, Environmental Consequences). As discussed, there is less volume removed under the research proposal.

Comments 163 and 206: The NFP standards and guidelines require that salvage logging only be allowed in riparian areas if necessary to attain Aquatic Conservation Strategy Objectives. The DEIS fails to explain why under the proposed salvage logging in Riparian areas under alternative G is necessary to achieve aquatic conservation strategies.

Response: The proposed salvage logging in the riparian area is not necessary to achieve the Aquatic Conservation Strategy. It is necessary to meet the objectives of the research proposal. The proposed salvage activities are designed to meet ACS objectives through the four components of the ACS objectives which are Riparian Reserves, watershed analysis, Key

Watersheds, and watershed restoration. Alternative G at a watershed and subwatershed scale would meet ACS objectives. See Section 3.4.3, Environmental Consequences, ACS Consistency Common to all Alternatives, which was added to the Final EIS.

Comments 203 and 235: Hazard tree removal will violate NFP ROD requirements to consider cutting and leaving roadside hazard trees in place. The EIS fails to address the "degree and direction of lean," even though these are important factors according to OSHA. Large roadside hazard trees should be left on the ground in the LSR and Riparian Reserves. The EIS fails to explain whether they are needed to meet biological objectives or not.

Response: Appendix D identifies the need to retain 12 snags/acre on white fir sites and 8 snags/acre on Douglas-fir sites. Appendix D also identifies that additional coarse woody debris would be provided by 10-16" DBH trees which would not be considered merchantable due to delay in harvest. Section 2.3.1.2 indicates hazard tree removal would extend a maximum of 200' from a given road. Trees within riparian areas or owl activity centers with suitable habitat would be retained except where a tree falls across the road prism. Retention of non-hazardous trees, unmerchantable trees, and all trees within owl cores or riparian areas may or may not result in adequate coarse woody debris levels along the portions adjacent to the road prism. Coarse woody debris needs at the stand level, however, would be provided for. The EIS recognizes degree and direction of lean in identifying hazard trees, as defined by OSHA (OAR 437-006-005), in Section 3.16.2.2. Appendix D also illustrates this consideration using *Oregon Guidelines for Selecting Reserve Trees* which was written in cooperation with Oregon Occupational Safety and Health.

Comment 395: The proposal to leave as little as 6 snags per-acre is a de facto clearcut and violates both the NFP and RMP standards and guidelines for LSR, CHU and Key Watershed management.

Response: The RMP Standards and Guidelines are the same as those in the NFP. The research meets the Standard and Guidelines and satisfies the assessment requirements as outlined in the May 12, 2003 REO research memorandum (see Appendix A). Salvage logging within research units covers only 282 acres of the 961 salvage acres included in Alternative G.

Comment 109: But the management guidelines and designs for LSRs mandate plans which enhance, protect and consider forest values other than lumber.

Response: Salvage is a permitted activity within designated LSRs. The NFP-ROD provides specific LSR salvage guidelines starting on page C-13 (see Appendix A). The ROD anticipated large scale fires within LSRs in the Klamath Province by providing "guidelines to reduce risks of large-scale disturbances." This EIS proposes restoration and salvage consistent with those guidelines.

Comments 171 and 172: Snag retention levels violate salvage guidelines in the NFP ROD, the South Cascades LSR Assessment, and the draft spotted owl recovery plan (3-199) which all require retention of all large snags to ensure snag and coarse wood habitat through time until the next stand begins to recruit significant numbers of large snags.

Response: The snag retention levels prescribed in the Preferred Alternative do not violate the NFP. The snag retention levels follow the DecAID Wood Advisor which REO determined would be consistent with LSR objectives (see Appendix A, REO letter dated May 13, 2003).

Comments 364, 352, 159, 245, 362, 246, and 379: The FEIS should explain, in the absence of adequate research data relative to salvage cut prescriptions consistent with the NFP, the value of simulating cut prescriptions not consistent with Late Successional Reserves (LSR) and Riparian Reserves Standards and Guidelines consistent with NFP.

Response: Appendix G contains the detailed research proposal including the rationale for the cut prescriptions. As described in Section 1.6, the research proposal is consistent with the Northwest Forest Plan because it tests critical assumptions of the NFP Standard and Guidelines and will produce results important for habitat development in all land uses. Alternative G, including the research, is consistent with the DecAID Wood Advisor on a landscape level.

Comments 250 and 348: The proposed salvage activities conflict with the Medford RMP, because salvage logging and other activities will violate the RMPs deferral of several heavily impacted watersheds in the fire area.

Response: Section 1.2.1 states, "This deferral was based on equivalent clearcut acres, compacted acres, openings in the transient snow zone, and road density." The objective of the deferral was to delay silvicultural treatments on BLM-administered lands until vegetation had recovered to reduce cumulative effects to acceptable levels. However, the Timbered

Rock Fire reset the vegetative state on most acreage within these drainages back to zero and negated the original purpose of these deferrals even though they remain in place. Furthermore, the deferral (USDI 1995, 42) states, "activities of a limited nature (e.g., riparian, fish or wildlife enhancements, salvage, etc.) could be permitted..." The deferrals for watershed monitoring remain in place. They are located outside the fire perimeter.

Comment 189: LSR Assessments are to identify "criteria for appropriate treatments" (NFP ROD page C-11). Treatments that do not meet these pre-defined criteria are therefore presumed to be "inappropriate." The commercial removal of large snags and other impacts on the LSR therefore inappropriate.

Response: The comment is taken out of context. A discussion of "Guidelines for Salvage" starts on page C-13 of the NFP-ROD. These criteria are expanded in the South Cascades LSRA, which includes two approaches to salvage: an area approach (used in this EIS) and a fire risk reduction approach. As these events were anticipated in both documents and management guidelines suggested, it is apparent that salvage logging is an appropriate treatment. Consistent with an REO memorandum dated May 13, 2003 (see Appendix A) "If amounts of standing dead and down wood proposed for retention in salvage units were estimated from the DECAID tool, then the proposed action would be consistent with objectives for managing LSRs."

Comment 195: The LSRA requires the consideration of "other factors" and urges the retention of snags on the bottom 1/3 of slopes, and north and east aspects (presumably where they are more likely to last the longest) (B-32).

Response: These factors would be considered when snag retention areas and actual salvage units are selected. Snags would be left adjacent to riparian areas and other sites where they would be likely to remain. Other considerations would be leaving some snags with cavities or loose bark on or near ridge tops and with east aspects in FMZs (see Appendix E, E-18) to provide benefit to bats.

Comment 219: Page 3-157 implies that there are "excessive" snag densities in the fire area and this poses a fire risk, however— a. this conclusion is not analyzed anywhere in the EIS, even though that is the recommended approach of the LSRA (to determine if fire suppression has resulted in snag/tree numbers greater than "typical"). Don't say snags are excessive until you credibly analyze it.

Response: Please refer to the analysis completed for Alternative C which compared the existing snag levels with the defined "typical" levels as identified in the LSRA. Table D-2 in Appendix D shows the existing unit snag levels compared to the LSRA "typical" levels.

Comment 227: The LSRA urges that fuel breaks be built where canopy closure is already been reduced below 40% (B-39), but without explanation BLM is going far beyond this recommendation.

Response: The comment refers to the Fuel Break Salvage Approach in the LSRA (see DEIS, Appendix B, B-41) and relates to salvaging within these fuel breaks. Salvage in the fuel breaks would only occur in areas where canopy closure is below 40 percent. The LSRA also includes "Treatments and Criteria to Reduce Risks of Large-Scale Disturbance" for reducing large fire risk with fuel breaks (see DEIS, Appendix B, B-11). These proposed fuel breaks would follow the described guidelines described in the project description Section 2.3.2.3 and salvage would not occur within them.

Comment 248: The May 13, 2003 memo from FWS purporting to approve the DecAID tool as an alternative to the LSRA methodology is arbitrary and capricious. There is no analysis to support this change and it is totally unscientific. The BLM's use of the DecAID tool fails to consider the fact that snags fall down and you need to retain many in the short-term in order to have enough in the long-term.

Response: The referenced memo is from the Regional Ecosystem Office. The LSRA describes criteria which, if combined with the Standards and Guidelines for salvage (USDA and USDI 1994b, C-13 to C-16), would result in no further review from REO. The LSRA acknowledges that other criteria, which meets LSR salvage standards, should be forwarded to the REO for review. The BLM forwarded the DecAID snag and CWD levels to the LSR Working Group and the Work Group concluded "If the proposed amounts of standing dead and down wood proposed for retention in salvage units were estimated from the DecAID tool, then the proposed action would be consistent with objectives for managing LSRs" (see DEIS Appendix D, pages A-18 and A-19). Figures 2.3-1 and 2.3-2 display the levels of snags by size retained within each alternative for both short and long-term. The EIS evaluates a number of snag and CWD retention levels, three of which are specific to Southwest Oregon. It is noted the Preferred Alternative snag and CWD levels meet or exceed these local references (see Appendix D, Table D-5). It is also noted the commenter later included the DecAID Wood Advisor as new

information which the BLM should consider in determining snags and down wood. See the response to Comments 268 and 269 in Section 5.4.2.1.

Comment 249: The EIS (3-195) says that they are meeting the requirements of the Diane White paper on retaining snags and coarse wood in SW Oregon, but that paper applies to Matrix regeneration harvest, not salvage. The page 1 of the SW Oregon PIEC MOU that implements this guideline is explicit that is applies to matrix regen, not salvage in an LSR.

Response: This comment is correct and it is why the Diane White paper was not included as a stand alone alternative. It was included because it provided another accepted local information source to compare with DecAID and other snag references. See DEIS Appendix D, Table D-5, Alternative G Snag and CWD levels, for a comparison of recommended snag and CWD levels by reference. In the intensive research replications, 6 snags per acre would be left on approximately 147 acres. In the other areas, 8-12 snags per acre would be left. This is within the range recommended by DecAID.

Comment 254: The EIS (p. 1-11) says that the LSRA will be updated after the FEIS/ROD for this project is approved, but if these documents are to be used as aids to informed decision-making (as intended in the Northwest Forest Plan ROD) then they need to be undated before the decision, not after.

Response: Neither the Watershed Analysis nor the LSRA are decision documents. Rather, they contain background information and recommendations regarding attaining LSR objectives. The information contained in this EIS will be used to update the background information and management recommendations. New information is added to the Watershed Analysis and LSRA as needed. Both documents were used to provide background information and to identify recommendations to implement LSR objectives.

Comment 363: In addition, the 100% proposed cut prescriptions for the fourteen acres of Riparian Reserves is not consistent with the LSR Standard and Guides for Riparian Reserves.

Response: The effects of this action were analyzed in Section 3.4.3.1, Environmental Consequences, Water Quality. The proposal is not 100 percent cut prescription, but leaves six trees per acre, consistent with other lands included within research units. The research proposal has been modified and now proposes fewer acres (11) within Riparian Reserves.

Comment 375: For the FEIS, we recommend that the South Cascades Late-Successional Reserve Assessment and the Elk Creek Watershed Analysis be updated and revised to accurately reflect current site condition changes due to the Timbered Rock wildfire.

Response: Section 1.6 states that both the Elk Creek Watershed Analysis and the South Cascades LSRA will be updated following completion of this EIS and associated ROD.

Comments 192, 196, and 191: The LSRA urges the use of small patch cuts or group selection limited to 20% of the area of stands with less than 40% canopy closure and limits salvage to 1% of the administrative unit. The LSRA sets forth a clear method of analysis for determining the median live tree density for the plant series and considers salvage of the material in "excess" of these "typical" levels. (B-30). This requirement is clearly not met, but that analysis is also lacking.

Response: The complete analysis of the treatments and criteria identified in the LSRA is included in Alternative C. Also, see Point 4 in the REO memo dated May 13, 2003 regarding estimated maximum treatments (see Appendix A, A-19).

Comments 193 and 198: The proposed salvage will create large (>10 acre) patches virtually devoid of trees and snags. The South Cascades LSRA recommends "small patches" (<5 acres) or group selection. The EIS (3-218) does not address this issue of patch size.

Response: The area salvage units in the Preferred Alternative (Alternative G) have been modified to address salvaging of patches with retention of snags within the unsalvaged portion of the unit. Patch size would vary from approximately 1–20 acres (see Appendix D, Table D-8 for detailed salvage acres within each unit). Research units would continue to scatter six snags/acre over the salvaged portion of the unit.

Comments 296, 422, 430, and 431: How the preferred alternative will meet Late Successional Reserves standards and guidelines and attain Aquatic Conservation Strategy objectives is not presented in an accurate, clear, complete, and unbiased manner.

Response: A summary of all alternatives and their consistency in meeting LSR S&Gs can be found in Table 2-2. The Preferred Alternative meets the S&Gs by limiting salvage to stand replacement areas greater than 10 acres and less than 40 percent canopy closure. The DecAID Wood Advisor snag and CWD retention levels and acres of salvage were all reviewed by the LSR Working Group and determined to meet LSR S&Gs. Section 3.4.3 has been added to the FEIS to further clarify consistency with the ACS.

Comment 253: The recommendations in the LSR Assessment and the Watershed Analysis have not been subjected to NEPA. The desired future conditions described in the LSRA of 55% late seral habitat within the LSR has not been validated or analyzed with respect to a range of alternatives or public comment. The recommendations to limit high risk conditions to 28% of the LSR, is similarly un-evaluated in terms of NEPA.

Response: The commenter is correct; the Watershed Analysis and LSR Assessment were not subject to NEPA. The Northwest Forest Plan was subject to NEPA and these documents are an outcome of the NFP. Page 57 of the NFP-ROD provides the direction on what activities may proceed after the completion of a LSRA. As stated in the LSRA (USDA and USDI 1998, 12), "The assessment provides information for context and some treatments as well as criteria to ensure consistency with LSR objectives. It does not exempt agencies from following NEPA and other planning requirements." The NFP-ROD (USDA and USDI 1994b, B-20) states "It will be an analytical process, not a decision-making process with a proposed action requiring NEPA documentation." "The information from the watershed analyses will contribute to decision making at all levels. Project-specific NEPA planning will use information developed from watershed analysis." The Timbered Rock Fire Salvage and Elk Creek Watershed Restoration EIS is the NEPA documentation that incorporates the LSRA and WA.

Comment 151: In this case, the BLM has no choice but to accept Boise Cascade's report, because the BLM has neglected to conduct its own research. Industry reports cannot and should not be substituted for BLM expertise. By accepting industry science without scrutiny, failing to conduct any research of its own, and failing to make the industry research publicly available the BLM is in violation of NEPA.

Response: Other scientific reports addressing mass wasting and debris torrents are available. However, this is a recently completed analysis (1999) specific to the Elk Creek Watershed and it would not be appropriate to ignore. In general, watershed analyses are sources of information for watersheds, with general conclusions related to outstanding issues and potential problems affecting the watersheds and processes within them. Project-specific planning and implementation would rely on this basic information to evaluate the effects of the proposed actions, by combining the basic information with the appropriate level of analysis (expertise) to project the effects of the proposed actions into the future.

In the case of mass wasting, the Boise Cascade Watershed Analysis presented credible and verifiable information (landslide inventory) that was used in combination with other analog, empirical, analytical, and statistical methods (expertise) to project, with reasonable accuracy, the effects of the proposed actions, namely salvage of dead trees and restoration projects. Ignoring the available, relevant, and credible information would be professionally negligent and an irresponsible waste of taxpayers' money. Furthermore, the Boise Watershed Analysis is an excellent document in regard to roads, sediment, and mass wasting.

Comments 90, 166, and 211: The proposed salvage activities are in fundamental conflict with the Endangered Species Act requirements, especially because logging, yarding, road activities and other activities will—a) "likely adversely affect" as well as "take" listed spotted owls in a critical habitat unit (3-172) and coho salmon,

Response: The wildfire resulted in the loss of critical habitat (see Appendix N, BO Citations). DEIS acres to be impacted have been reduced in the FEIS (see Appendix N tables). Portions of some research units have the potential to adversely impact due to their proximity to active owl centers. In compliance with the ESA, the proposed action and this potential for adverse affect are covered under BLM's programmatic consultation with USFWS (log # 1-14-03-F-511), which was completed after publication of the DEIS. There is a possibility that owls may continue to use burned stands within critical habitat. Stands of fire-killed trees greater than 10 acres are not considered as suitable owl habitat. Relevant references are listed in Appendix N, BO Citations.

Comment 355: The Oregon Department of Environmental Quality (ODEQ) anticipates completing the Upper Rogue Basin temperature TMDL in 2004. If a TMDL has not been established for those water bodies already on the 303(d) list, Oregon water quality standards require that proposed actions demonstrate that there will be no measurable surface water temperature increases resulting from anthropogenic activities in a basin where salmonid fisheries is a designated beneficial use and in which surface water temperature exceeds 64°F.

Response: This was discussed in Section 3.4.3.1, Environmental Consequences, Water Quality, Temperature. A Water Quality Management Plan (WQRP) is included in Appendix I.

Comment 357: This CWA provision prohibits degrading the water quality unless an analysis shows that important economic and social development necessitates degrading water quality. The FEIS should explain how the antidegradation provisions of the State of Oregon's water quality standards would be met within each Alternative.

Response: The Medford District RMP (USDI 1995, Appendix D, Best Management Practices, page151) states, "Best management practices (BMPs) are required by the Federal Clean Water Act (as amended by the Water Quality Act of 1987) to reduce nonpoint source pollution to the maximum extent practicable. BMPs are considered the primary mechanisms to achieve Oregon water quality standards." "The BMPs in this document are a compilation of existing policies and guidelines and commonly employed practices designed to maintain or improve water quality. Objectives identified in the BMP Appendix also include maintenance or improvement of soil productivity and fish habitat since they are closely tied to water quality. Selection of appropriate BMPs will help meet Aquatic Conservation Strategy objectives during management action implementation. Practices included in this Appendix supplement the Standards and Guidelines from the SEIS ROD and they should be used together."

The Antidegradation Policy standards and policies begin in OAR 340-041-0120, Implementation Program Applicable to All Basins. Section (11)(e)(A) of these rules states "Federal forest management agencies are required by the federal Clean Water Act to meet or exceed the substantive requirements of the state forestry nonpoint source program." ODEQ currently has Memoranda of Understanding with the US Forest Service and Bureau of Land Management to implement this aspect of the Clean Water Act. These memoranda will be used to identify the temperature management plan requirements for federal forest lands. The use of appropriate BMPs, the development of a Water Quality Restoration Plan (WQRP) for the Elk Creek Watershed (see Appendix I, Hydrology), and continued water quality monitoring in the watershed are the methods to meet the requirements of the Antidegradation Policy of the Clean Water Act. These are applicable to all alternatives and therefore all alternatives are meeting the Antidegradation Policy. As of August 26, 2003, the BLM and the Oregon Department of Environmental Quality have signed a Final Water Quality Memorandum of Agreement (MOA) that updates the 1990 agreement and defines the process by which ODEQ and the BLM will cooperatively meet State and Federal water quality rules and regulations.

Comment 291: Request for Correction of Information. Request for Correction of Information is submitted under USDI's Information Quality Guidelines.

Response: As stated under the subject "Draft Guidelines," under "Applicability," the draft Information Quality Guidelines "are not designed to create new regulations nor impose any new legally binding requirements or obligations on BLM or the public or otherwise affect other available judicial review of BLM action." NEPA provides an opportunity for the public to participate in the review of environmental analyses through the scoping process (40 CFR 1501.7) and specific commenting process for EISs (40 CFR 1503). Application of these draft guidelines appears to conflict with 40 CFR 1500.4, reducing paperwork, as this would create a duplicate process. A list of items following the "request for correction of information" in this comment were identified as "substantive" comments and were responded to in this chapter.

Comment 301: The requirements of the Northwest Forest Plan, the LSR Assessment, the federal register notice setting forth spotted owl critical habitat, and the draft spotted owl recovery plan set forth decision-making criteria that reflect environmental considerations, that the BLM appears to have forgotten or misapplied.

Response: The BLM disagrees. The Northwest Forest Plan (NFP) requirements are incorporated throughout the DEIS. The recommendations set forth in the LSRA were used to develop restoration projects as well as alternatives. The draft spotted owl recovery plan is addressed on page 39 of the NFP-ROD. It states, "The Fish and Wildlife Service has indicated that land allocations and standard and guidelines of Alternative 9, as modified by this section, fulfill the obligations of the Forest Service and BLM with respect to the recovery of the northern spotted owl." Spotted owl critical habitat is addressed in the USFWS Rogue/River/South Coast Biological Opinion, #1-14-03-F-511, FY 04-08, signed October 20, 2003 (see Appendix N, Wildlife).

Comment 535: KS Wild would like to remind the BLM, that after commenting on the Timbered Rock Rehabilitation/ Stabilization Project EA, we elected *not* to appeal the decision to implement the project. Should the BLM proceed with plans to extract wood fiber from the Elk Creek LSR and Tier-1 watershed for economic rather than ecological purposes, appeals and litigation will result.

Response: The BLM believes the NFP and the LSRA both accommodate salvage. Page 168 of the South Cascades LSRA states "The ROD provides direction for salvage and states, 'Salvage guidelines are intended to prevent negative effects on late-successional habitat, while permitting some commercial wood volume removal.' (ROD C-13). The core team has not found a biological rationale for salvage." This EIS is consistent with those statements. Objective 7 in this EIS (see Section 1.3.1, Objectives) states, "Recover some economic value of fire-killed trees while meeting LSR and watershed objectives. (NFP and LSRA) (MMBF)." It appears that KS Wild has made an a priori decision to file a lawsuit if the BLM attempts to implement this EIS, the NFP, and the LSRA. This EIS does not claim there is an ecological benefit to salvage logging. The above quote from the NFP-ROD, page C-13, goes on to say "In some cases, salvage may actually facilitate habitat recovery" and provides some examples. The BLM is proposing to implement the ROD by "permitting some commercial wood removal."

5.4.1.3 Public Involvement and Collaboration

Comments 214, 215, 262, and 443: The information provided by the BLM to the NOAA Fisheries in order to support the letter of concurrence is clearly incomplete and biased towards a LAA finding. Had the clearcutting (area salvage) riparian reserve logging, ground based yarding on highly impacted soils and logging road construction been proposed previously to the PCFFA court rulings, the BLM and NOAA would certainly have determined that the project was Likely to Adversely Affect listed fish species.

Response: BLM performed an informal consultation on July 17, 2003 for a not likely to adversely effect determination and NOAA-Fish responded with a letter of concurrence on August 29, 2003. The Biological Assessment describes adverse effects to coho. "Not Likely To Adversely Effect" (NLAA) does not mean there are no adverse effects. "Not Likely To Adversely Effect" are effects expected to be discountable, insignificant, or completely beneficial. Short-term immediate effects from actions are described throughout Section 3.5.3, Fisheries, and include those concerns from the Ninth Circuit Court.

Comment 366: We recommend that the FEIS provide a detailed description of BLM's determination of compliance with ESA, including the results of any consultations with the US Fish and Wildlife Service (USFWS) and the National Oceanographic and Atmospheric Administration (NOAA) Fisheries.

Response: Consultation with NOAA-Fish is completed. A Letter of Concurrence was issued August 29, 2003 (see Appendix J, Fisheries). Consultation with USFWS is also completed. The Rogue/River/South Coast Biological Opinion, #1-14-03-F-511, FY 04-08, signed October 20, 2003 (see Appendix N, Wildlife).

5.4.1.4 Issues

Comment 465: Will cutting old growth canopy to 40% accelerate the development of late-successional characteristics? An indicator of late-successional development would be monitoring spotted owl demographics while doing conservative management.

Response: Salvage of dead trees will take place in units already below 40 percent canopy closure. There are no plans to cut old growth canopy. Appendix E describes the restoration projects which are intended to accelerate the development of late-successional habitat. Canopy closures would generally remain above 50 percent after treatment with desired future conditions greater than 70 percent except under scattered large pine when recruiting pine regeneration. Monitoring will continue on owl demographic performance.

5.4.2 Chapter 2

No comments were received.

5.4.2.1 Alternative Design

Comments 177 and 179: The DEIS misuses the DecAID decision support tool. The EIS relies on DecAID to analyze impacts on snag dependent species, but the EIS fails to recognize that "DecAID is NOT: … a snag and down wood decay simulator or recruitment model [or] a wildlife population simulator or analysis of wildlife population viability.

Response: The EIS uses the DecAID Wood Advisor as a reference for leaving snags and down wood. The impacts of leaving these proposed levels are addressed in the environmental consequences of each alternative by the appropriate specialist in the EIS. Appendix D of the DEIS includes a description of "What is the DecAID Advisor?" which includes the "DecAID is Not" statement. The BLM recognized that using DecAID as a reference did not meet LSRA criteria so it forwarded Alternative G to the LSR Working Group for review and clarification. The Work Group concluded "if the proposed amounts of standing dead and down wood proposed for retention in salvage units were estimated from the DecAID tool, then the proposed action would be consistent with objectives for managing LSRs" (see DEIS, Appendix A, pages A-18 and A-19).

Comments 268 and 269: The agency must avoid any reduction of existing or future large snags and logs (including as part of this project) until the applicable management plans are rewritten to update the snag retention standards. See also… http://www.fsl.orst.edu/cfer/snags/bibliography.PDF; and DecAID, the Decayed Wood Advisor for Managing Snags, Partially Dead Trees, and Down Wood for Biodiversity in Forests of Washington and Oregon, http://wwwnotes.fs.fed.us:81/pnw/DecAID/DecAID.nsf

Response: The proposed snag retention standards are based on the most updated snag and CWD standards applicable to the Timbered Rock area available at the time of the DEIS publication. This includes the DecAID Wood Advisor, as was suggested in this comment.

Comments 256 and 377: Yet on page 2-38 we learn that the BLM "would not have a reasonable range of alternatives to choose from if guidelines from the South Cascades LSR Assessment were used as the maximum amount of salvage." Clearly the massive logging proposed under Alternative G is not consistent with many aspects of the LSRA, including (but not limited to) the finding that there is no ecological rational for salvage logging and the maximum salvage guidelines.

Response: The rationale for analyzing salvage levels both higher and lower than suggested in the LSRA is included in Section 2.5, consistent with 40 CFR 1502.14, as stated. The BLM has not claimed there is an ecological benefit to salvage logging. The BLM is not proposing massive salvage logging. The guidance found in the NFP-ROD and the South Cascades LSRA provides for a limited amount of economic recovery of fire-killed trees, consistent with meeting LSR objectives. Alternative G meets those objectives.

Comments 380, 461, and 516: Northwest Forest Plan Standards and Guidelines C-4 state that every effort should be made to locate science projects with conforming land use. We see no evidence that any effort was made to locate the proposed regeneration logging within a conforming land use.

Response: The research proposals would test critical assumptions of the NFP Standards and Guidelines and produce results important for habitat development as stated in the NFP. The proposals are to respond to research questions revolving around the influences of post-fire salvage and salvage intensities on wildlife species, and evaluating vegetation dynamics and fire hazard in mixed-species plantations following a large-scale fire event. The Timbered Rock Fire provided the large-scale event to do this research. The research meets the Standard and Guidelines and satisfies the assessment requirements as outlined in the May 12, 2003 REO research memorandum (see Appendix A).

5.4.2.2 Salvage Proposals

Comment 169: This project looks too much like a Matrix timber grab that will only add to public mistrust. About half of the fire killed trees were giant trees over 36 inches in diameter. This is clearly what the BLM is after, but these are precisely the same trees that are most valuable to the future forest. These ecological giants are most likely to last a long time and provide valuable ecological structures and functions into the next stand.

Response: The BLM included Alternative E for comparison of a high salvage level which would be considered if the Timbered Rock Fire occurred on Matrix land. Figure 2.3-2 has been added to the FEIS to show the distribution of retained and salvaged trees within diameter ranges by alternative. This figure shows that approximately 5 percent of all fire-killed trees are greater than 36" DBH. Under Alternative G, approximately 67 percent of the fire-killed trees greater than 36" DBH would be retained.

Comment 197: The DEIS failed to explain how salvage was designed to meet this DFC. Each harvest unit should be justified by an explanation of how it will help attain this DFC (or at least not retard DFC attainment).

Response: The design of salvage in the Preferred Alternative includes salvaging in areas greater than 10 acres with less than 40 percent live canopy closure. Snag levels would meet recommendations from the DecAid Wood Advisor. The LSR Working Group determined the use of DecAID would be consistent with meeting LSR objectives (see memorandum dated May 13, 2003 in Appendix A). This alternative design is consistent with the "Guideline for Salvage" as described in C-13 through C-16 of the NFP-ROD. Following these guidelines would not have a negative effect on late-successional habitat or prevent attainment of the DFC (see Tables 2-4 and 2-5).

Comment 263: Salvage is not restoration.

Response: The BLM did not describe salvage as a restoration activity. As described in Section 1.2.2, the need was to "assess the possibility of economic recovery of fire-killed trees (salvage) within the fire perimeter, consistent with LSR objectives." The Purpose and Need did not address any restoration benefit from this activity.

Comment 416: The DEIS also provides conflicting numbers regarding the types of proposed yarding systems. Page 2-37 of the DEIS indicates that the BLM intends to implement 440 acres of cable yarding, 47 acres of tractor yarding, 552 acres of helicopter yarding and 12 acres of tractor/bull line yarding pursuant to "area wide salvage logging. Page 2-36 indicates that the science project logging may include 194 acres of cable yarding, 23 acres of tractor yarding, and 111 acres of helicopter yarding. No figures are provided regarding roadside highgrade yarding, FMZ yarding, yarding from stand treatment greater than 70% canopy, pine release yarding or yarding pursuant to the construction of new logging roads. Indeed the impacts from the unknown yarding systems are simply ignored by the BLM.

Table S-3 and 2-1 provide different yarding numbers. In these portions of the DEIS the BLM claims that 1,888 acres will be tractor yarded, 1,051 acres will be bull-line yarded, 338 acres will be skyline yarded and 984 acres will be helicopter yarded. BLM Co-Team lead John Bergin called and emailed KS Wild to inform us that by posting the figures provided in BLM's DEIS we were misleading the public. If there is any place in the DEIS in which the public can find the actual total yarding numbers, and perhaps an analysis of their environmental impacts on the LSR, we would appreciate being informed of it.

Response: The reference to the DEIS page 2-37 and 2-36 are the correct acres for the "area salvage" units and the salvage in the research units. These acres are used in the assessment of Alternative G. The "Salvage of Roadside Hazards" in the DEIS (page 2-37) indicated 955 acres. As noted in Table 2-1, Comparison of Alternatives, these acres are identified to be bull-lined from existing roads. The description of the alternatives in the FEIS has been updated with revised salvage and harvest treatment acres. The FMZ acres identified for commercial thinning were analyzed to be tractor logged. These acres and logging systems have been revised in the FEIS. The harvest system acres for the Pine Restoration and Late-Successional Restoration treatments were included in Table 2-1. These acres have been revised in the FEIS. As noted there was an error found in the Soils Section in Tables S-1 and 2-2. Actual acres for Alternative G should have been 70 acres of ground based tractor yarding and 967 acres of bull-line yarding. These tables have been revised in the FEIS.

Comments 85, 87, 185, and 271: The EIS does not define live and dead trees, and experience shows that salvage always involves removal of live trees that are determined to be dying. The BLM has not defined live or dead or dying trees.

Response: The salvage proposal includes salvaging of fire-killed trees only. Although, an occasional green tree may need to be cut for access or logging feasibility. Trees meeting the following description of a "dead" tree would be available for salvage. A "dead" tree at the time of salvage would be any tree with no apparent sign of green foliage. Section 2.3.1.1 in the FEIS has been updated to reflect this description.

Comments 98, 194, 204, 255, 292 and 293: Figure 2.3-1 on page 2-5 is highly misleading. Rather than describing the fate of all fire-killed trees, this graph should be describing the fate of large trees (over 20 inches) that are most likely to last the longest and are therefore most biologically relevant. Compare to the figure on page 3-222 which shows that most of the volume is in giant trees over 36 inches.

Response: The Preferred Alternative, Alternative G, meets the snag and CWD levels identified in the DecAID Wood Advisor for southwest Oregon. This recommends a level of snags and sizes by plant series for this region. Figure 2.3-2 shows the distribution of snags by diameters which would be remaining and removed within each alternative.

Comments 47, 48, 96, 264, 280, and 282: Prevention of reburn must not be used as a justification for post-fire logging, without carefully documenting the rationale and providing references to published scientific studies (not just hypotheses and speculation and anecdotes).

Response: The DEIS makes no claim that salvage logging would reduce potential of reburn. Reburn potential is a function of ignition sources and weather as well as fuel loadings (see Section 3.10.2.1, Fire Behavior). Salvage would have little or no effect on ignition sources or weather. In a fire-dependent ecosystem, the natural process of vegetation regeneration is geared to frequent fires to maintain the system. The severity (hotness) of these fires is determined by fuel moistures, at the time of the fire, and fuel loading, particularly in the larger size classes. Salvage can be a determining factor in fuel loadings (severity) for future fires (Brown, Reinhardt, and Kramer 2003, 4). See Appendix M, Fuels, for a discussion of long-term site damage by fire severity by alternative. This information was used in designing alternatives and PDFs.

Comment 294: The many ecological, hydrological and other values of dead wood were not presented in an accurate, clear, complete, and unbiased manner.

Response: The EIS team made every effort to present all information in an accurate, clear, complete, and unbiased manner, including the ecological, hydrological, and other values of dead wood. These values were addressed in many sections of the DEIS including Section 3.6.3.1 (Vegetation, Late-Successional Habitat), Section 3.4.3.1 (Hydrology, Water Quality, Large Woody Debris), Section 3.3.3.6 (Soil, Soil Productivity), and Section 3.12.4.2 (Wildlife, Cavity and Down Wood Dependent Species).

Comments 381 and 415: Is the Medford BLM familiar with the NFP standard and guideline at C-14 that states "Consequently, all standing live trees should be retained, including those injured (e.g., scorched) but likely to survive." Does the Medford BLM use a different definition of the term "all" than is found in common usage?

Response: Section 2.3.1 discusses that the potential for "an occasional green tree may be cut to facilitate logging." These trees may be needed for guy lines for cable yarding systems. Green trees may also be cut to clear for yarding corridors or landings. The FEIS has added "new temporary roads" to this statement. Page C-15 of the NFP S&Gs states, "Some deviation from these general guidelines may be allowed to provide reasonable access to salvage sites and feasible logging operations."

Comment 408: Upon what basis does the BLM contend that felling and yarding trees up to 200' below a road contributes to human health and safety?

Response: As stated in the DEIS, it is anticipated the area below the road would have fewer hazard trees than above the road. This section further states, "Only those trees that pose a threat or potential threat would be harvested."

Comments 410 and 411: Does the BLM have estimated DBH for the trees to be felled, yarded and sold from the LSR and CHU as part of the roadside highgrade yarding? Page 2-6 of the DEIS contends that "Stand replacement areas (generally high and moderate severity) would have higher concentrations of hazard trees. Areas of low and very low severity would have fewer hazard trees and would be isolated trees scattered along the roads." Yet table 2.3-2 indicates that the BLM's preferred alternative calls for roadside highgrade logging on 881 acres of low-very low severity areas while highgrade 74 acres of high/moderate severity lands.

Response: An alternative which would harvest only the largest, most valuable, and best growing trees within the LSR was not considered. This option is considered unfeasible since it would be counter to the objectives of retaining green trees and reducing hazards along roads. Areas considered for roadside hazard tree removal are displayed on Alternative Maps 2-2(f) through 2-6(f) of the DEIS. The 881 acres of low/very low severity acres were included to be reviewed for roadside salvage. As noted, there would be fewer hazard trees because of the anticipated scattered nature of the potential hazard trees. Harvest level estimates of specific roadside hazards were not provided in the document. In Alternative G, it is estimated approximately 12,000 trees, 8" DBH and greater, could be cut for roadside hazards. This equates to approximately 2.5 MMBF.

Comments 481 and 533: All alternatives contain extensive roadside salvage. Most of these snags will not be left by the roadside as is recommended in the LSRA but hauled out and sold. The purpose of roadside salvage is supposed to be done to remove hazard trees. Yet for each alternative the acres available by burn severity (Table 2.3-2) are different. If these represented only hazard trees, the number of trees being harvested for roadside salvage would be similar for each alternative.

Response: The area identified for roadside hazard varies by Alternative because proposed harvest units also vary by alternative. Where units are adjacent to roads, salvage of the hazard trees are incorporated into the unit. Comparison of Alternative Maps 2-1(f) through 2-6(f) of the DEIS shows that mapped roadside hazard areas in one alternative may be shown as part of a salvage unit in other alternatives.

Comment 412: Every other discussion of roadside highgrading uses the 955 acres figure. Where did the 100 acre figure come from? Page 3-103 also indicates that "areas that received high or moderate burn severity would have the majority of the hazard tree removal."

Response: Highgrading is not proposed on page 3-103 or anywhere else in this EIS.

The EIS proposes salvage of fire-killed trees that present a hazard along roadsides. The roadside salvage acres are calculated from a strip approximately 200' wide above and below identified roads. Few trees below the roads would be salvaged for roadside hazard. Approximately 500 acres located above the roads (half the acreage), would only have scattered areas where trees would be removed for hazard, unless those trees are part of a scheduled salvage unit. It is hard to estimate exactly how many acres would be affected by hazard tree removal, but it is likely that it would be less than 100 acres, even though the distance encompassed by a strip 200' above and below the roads considered constitutes 955 acres. The areas of hot and moderate burn severity have the majority of the fire-killed trees, so those areas would receive the majority of the hazard tree removal.

Comment 409: What type of yarding is proposed for the roadside highgrading? If it is bull-line yarding, does not ground based yarding above road systems concentrate compaction and waterflow into the road prism?

Response: Bull-lining from the existing road is proposed for the roadside salvage. The effects of these actions are described in Section 3.4.3.1 (Water Quality, Effects of Alternative G on Sediment, Salvage, Direct and Indirect), "The effects related to roadside … Because of these conditions and PDFs to water bar corridors after use, these acres would not deliver sediment to streams."

Comment 241: Page 3-34 the EIS touts the benefits of salvage in breaking up hydrophobic soil conditions, but elsewhere in the EIS and appendices (1) it is recognized the hydrophobic soils are a very localized phenomena (so the benefits of salvage are far over estimated and applied where it is not needed) and (2) it is recognized that the first couple Fall rains usually break up the hydrophobic soil conditions and that already happened last year and this year, so salvage logging is completely unnecessary. Unless a site specific analysis is performed identifying extensive areas of hydrophobic soils in the fire area and alternatives are designed to address those specific problem areas, all references to the alleged benefits of logging related to hydrophobic soils must be removed from the EIS.

Response: Hydrophobic soils were discussed in Section 3.3.2.4 (Soil, Erosion, Post-Fire). Hydrophobic soils were found by the Timbered Rock soil and slope stability specialists during the first winter. At present, we do not consider it a major hydrologic concern, and are not trying to search for hydrophobic soils. The BAER specialist who prepared burn severity maps for the Quartz, Biscuit, and Squires Peak fires, among others, found more indications of hydrophobicity on the Timbered Rock Fire than on any she has seen elsewhere for at least the last two years (Parsons, personal communications). This information was added to Section 3.3.2.4. Beschta wrote, five years after the "Beschta Report," that the use of ground-based yarding systems may assist in disrupting the surface hydrophobic condition (Ice and Beschta 1999).

5.4.2.3 Restoration Proposals

Comment 360: Implementing the associated restoration actions, however, is almost entirely dependent on funding which currently is unsecured. If salvage is initiated as projected but the associated restoration actions are limited, delayed or not implemented because of weak funding levels or lack of funding allocations, the described impacts have the potential to be much greater than described in the DEIS.

Response: The restoration proposals are not designed as mitigation for salvage logging. Effects of implementing salvage and restoration are analyzed separately. If funding is not available to implement the restoration proposals or only a portion of the restoration projects, then those effects would not occur. Funds to implement restoration projects have been requested through the BLM budget process. Both restoration projects and salvage logging include project design features (PDFs) to mitigate effects.

Comment 361: The FEIS should ascertain the impacts of each alternative in terms of proposed salvage and the restoration actions which would be fully funded and would actually be implemented. The FEIS should also provide a prioritized list of funded restoration projects to be implemented in each alternative.

Response: This would be contrary to the intent of NEPA. Creating an endless series of alternatives based upon which specific restoration projects might be funded would not help the decision maker, would result in inordinate confusion, and would unnecessarily lengthen the EIS. The proposed restoration projects were divided into four categories based upon urgency and alternative design (see Section 2.3.2, Restoration Proposals).

Comment 459: When so much of the watershed is burned, the appropriateness of implementing management activities in the untouched part of the LSR that may be dispersal for these species is questionable.

Response: Timing of projects to reduce cumulative effects is a concern. The EIS analyzes the appropriateness of no treatments outside the fire perimeter in Alternative A, the "no action" alternative, and Alternative F which analyzes salvage and restoration projects only within the fire perimeter. See the response to comment number 487 in this section regarding suggested "roadless areas."

Comment 476: Restoration projects (except road decommissioning) should be limited to the area inside the burn perimeter. Owls and other wildlife need dispersal areas.

Response: No current dispersal habitat will be degraded to where it would not function as dispersal habitat. The BO (2003, 70) states that sufficient dispersal habitat will remain. Restoration projects outside the burn are intended to accelerate the trajectory to late-successional characteristics or to provide insurance to maintain existing LSOG character.

Comment 487: Stay out of areas with Roadless Characteristics such as that mentioned on pg 5-A (see Comment number 479)

Response: BLM has no designated "roadless" areas within the project area. As shown in Section 3.14, Table 3.14.1, the average road density in the entire watershed is about 4.6 miles of roads per square mile, with 4.3 on BLM-administered lands. No new permanent roads will be built. The temporary spurs will be short segments in areas with existing roads and will be decommissioned in the same season they are built (see DEIS, page 3-211). There is at least one road segment within each section of BLM-administered land within the project area.

Comments 251, 351, and 529: The economics and proposed available budget for the project seem to favor salvage logging over the watershed restoration activities. The DEIS mentions that if the FEIS is approved, timber sales could start as early as summer 2004 as authorized. However, there is no timetable set forth for watershed restoration activities, and their implementation hinges on available appropriated funds. If implemented prior to salvage logging, the proposed watershed restoration activities could serve as mitigation measures for the salvage logging proposals and their expected impacts on increased sediment erosion and delivery rates.

Response: The restoration proposals are not designed as mitigation for salvage logging. Most of the restoration projects would have been proposed to restore late-successional forest habitat conditions if the fire had not occurred. Congress only appropriates funds on an annual basis. This issue is identified in Section 1.2.3, Controversy. There is no tie between implementation and effects of salvage logging versus restoration proposals. If the restoration proposals are not funded, they will not be implemented, and both the long-term positive effects and short-term adverse effects will not occur. As stated in the EIS, it is anticipated the restoration projects would be implemented over a 2-10 year period. Funds to implement these projects have been requested through the Bureau's budgeting system. The effects of the salvage logging will occur as anticipated if the fire-killed trees are sold and harvested (see Sections 1.2 and 1.3).

Comment 7: The chosen alternative should improve older-forest structure in the LSR, improve fish habitat in Elk Creek, and require surveys for species listed under Survey and Manage before salvage operations begin, with designated buffers for occupied sites.

Response: The BLM agrees. Alternative G is intended to meet the conditions of the commenter's request. The Late-Successional Forest Habitat Restoration, Pine Release and Riparian Reserve Thinning projects are designed to promote late-successional conditions in forest stands. Over 2,500 acres of thinning to promote these conditions is proposed (see Section 2.3.2.2, Vegetation Restoration Projects).

Proposed FMZs are intended to reduce the potential size of future fires and the effects these large fires have on Late-Successional habitat. Alternative G proposes 1,300 acres of FMZs (see Section 2.3.2.3, Fuels Treatment Projects). The proposed fish habitat improvement projects are designed to improve "habitat complexity and passage for salmon and trout." Fish culverts have been identified for replacement or removal to improve fish passage. Installation of in-stream fish structures

has been proposed on 8 miles of streams (see Section 2.3.2.1, Fish Habitat Improvement Projects). All required survey and manage and special status surveys would be completed before salvage operations and restoration projects begin in areas where habitat exist for these species. Buffers and/or appropriate protection measures would be taken on any known sites (see Section 2.3.1.3, Project Design Features 18 and 30).

Comment 27: All the restoration activities directed at improving fish habitat or minimizing sediment movement, in the plan, are described as isolated projects. This comes across like accomplishing "random acts of kindness" across the landscape, rather than a comprehensive plan to address issues. It is not clear to the reader what, if any, all this activity will accomplish. It would be helpful to summarize the alternatives so that, on some relative scale, the reader could discern the long-term consequences of all these actions combined.

Response: The appearance of isolated projects is true and is in part due to the checkerboard ownership pattern within the watershed. Projects were identified where needed and feasible on BLM lands. A comprehensive plan would be more attainable if the watershed was managed by one owner or if a cooperative plan with all landowners could be accomplished. The LSRA includes a desired future condition which has been added to the FEIS. The Elk Creek WA also has specific recommendations which address issues identified in the analysis and are included in Appendix C. The effects of the alternatives are summarized in Table 2-2 (Summary of the Effects of the Alternatives) and Table 2-3 (Cumulative Effects Analysis Summary). Tables 2-4 and 2-5 were added to the FEIS to show anticipated trends and consequences of the proposed actions in meeting the desired future conditions.

Comment 29: Intensely managed stands will develop these characteristics sooner and the differences in strategies employed will be evident.

Response: The submitted research proposal in Alternative G on "Vegetation Dynamics and Fire Hazard in Experimental Mixed-species Restoration Plantings in Southwestern Oregon" is designed to answer some questions relating to vegetation dynamics, stand development, and fire hazard levels given different management tools and strategies. This research would provide strategies for development of stands with reduced fuel loads and serve a broader spectrum of ecological functions. A suite of strategies would be developed for uses on various land allocations such as Matrix land, Late-Successional Reserves, or Riparian Reserves. See Appendix G for detailed research proposals.

Comment 482: However, there is too much riparian thinning for LWD in streams planned (15-25 logs per mile seems excessive). The text on Pg E-2 does not say how many large green trees (20-24") would be cut to contribute to LWD.

Response: Page 2-8 of the DEIS provides a description of fish habitat improvement projects. The placement of the LWD (15-25 logs per mile) are not green trees from the riparian thinning. These are fire-killed trees that range from 20-24" DBH. In addition to the logs placed in the stream, in areas where Riparian Reserves were identified for thinning, some of the smaller diameter trees would also be added to the stream.

Comment 505: Reconsider hard instream structures such as weirs with large volumes of rock and gravel. These might not stay in place.

Response: Experience shows rock weirs can be constructed large enough so little movement would occur. They function very well to collect spawning gravels, as demonstrated by the structures placed in Sugarpine and Hawk creeks.

Comment 30: The final plan needs to recognize acres in need of reforestation and implement a plan to effectively reforest these acres.

Response: Areas burned at high or moderate severity would be planted. Section 2.3.2.2 (Reforestation) gives a brief description of the reforestation plan, Map 2-4 depicts the areas of high and moderate burn severity that would be planted, Table 2-1 gives a description of the reforestation plan by alternative, and Appendix E (Proposed Restoration Project: Reforestation), describe the reforestation plan, along with desired future conditions. In response to public comments such as this, Table 2-4 (Stand-Replacement Trends and Consequences – Fire Effects) has been amended and now describes the stand-replacement trends and consequences of reforestation efforts and subsequent treatments at 15, 50, and 80 years of age for these planted areas. Research, in association with Oregon State University, is proposed for reforestation of up to 100 acres. This plan is described in Section 2.3.2.2 (Reforestation Research Project), summarized in Table 2-1, and described in more detail in Appendix E (Proposed Reforestation Research Project) and Tables E-7 and E-8. Approximately 1,000 acres have already been planted via the Emergency Stabilization Rehabilitation Plan (ESRP).

Comment 473: Riparian thinning should not be used as an excuse for logging green trees in the LSR.

Response: Appendix E: Restoration Project: Riparian Reserve Thinning describes the actions in these reserves. There would be no "logging" or removal of material with the thinning projects in the Riparian Reserves. Trees that are severed would be left on site, or piled and burned, depending on size. Trees that are girdled would remain.

Comment 475: What do the Pine Restoration areas currently look like? 40% canopy should not be the standard for green tree retention in any part of the LSR except for naturally occurring open areas.

Response: Lands classified as pine plant series are described in Section 3.6.1 (Vegetation). Presently the pine stands have canopy closures ranging from 40-90 percent, a varied composition with many areas dominated by Douglas-fir understory, and no pine regeneration. Appendix E (Restoration Project: Pine Habitat Restoration) describes the project design features and the actions by alternatives, as recommended by the South Cascades LSRA. Overstory and co-dominant pines in the range of 23 to 63 tpa are recommended with an understory component of pine up to 80 tpa. This is greater than 40 percent canopy closure. The objective is not 40 percent canopy closure and is not stated as an outcome of the restoration treatment. It is possible that canopy closures immediately after thinning could be down to 50 percent. This is a temporary situation to allow for pine regeneration where it is nonexistent under overstory pine.

Comment 478: Nowhere in the document could I find an explanation of "high priority riparian area" as opposed to riparian thinning and other restoration projects.

Response: The explanation of a "high priority riparian area" is in Section 3.7.2.1 (Special Habitats, Riparian Vegetation) under Watershed Level Conditions. The third paragraph states, "The highest priority Riparian Reserves in the Elk Creek Watershed for treatment would be high burn severity areas and areas impacted during fire suppression activities."

Comment 483: Most of these projects [Late-Successional Forest Habitat Restoration] are located outside the burn perimeter in critical habitat and owl activity centers. Elk Creek is also a Key Watershed that is supposed to be protected from logging. This part of the plan seems like an excuse to cut large green trees in the LSR. If there are young conifer plantations (10-30 years), they could be thinned. Otherwise stay out of these areas entirely.

Response: Appendix E describes the proposed projects. Restoration treatments, along with reforestation treatments, are planned in stands from 10 to 80 years of age. The proposed thinning in 30-80 year old stands would only remove trees less than 20" DBH. This thinning-from-below is intended to enhance the growth of remaining trees to hasten an LSOG trajectory to create quality critical habitat characteristics. Tables 2-4 and 2-5 describe the growth and future conditions of treated stands for the reforestation areas and restoration areas, respectively. There are no plans to cut large trees in the restoration projects. The LSR assessment allows trees up to 24" DBH to be cut in pine stands, however, in very few cases would trees greater than 20" DBH be removed and pine would be retained.

Comment 484: In general do not thin in Riparian Reserves.

Response: The projects proposed in the Riparian Reserves are described in Appendix E (Proposed Restoration Projects), Riparian Reserve Thinning. The intent is to accelerate the development of late-successional characteristics including large conifers to provide future large wood for streams. The thinning projects would not remove any wood products. There is no commercial extraction in the Riparian Reserves. There is a no-cut 50' buffer from fish-bearing streams and a 30' no-cut buffer from all other streams.

Comment 485: PCT stands 10-30 years old (small trees) is appropriate since these stands are fire prone. Early seral brush could also be cut.

Response: Appendix E (Proposed Restoration Projects) describe the actions proposed. PCT would occur in stands 10-30 years old. The reforestation project includes cutting of early seral brush on 50 percent of the planted conifer seedlings to maintain their survival and growth. See Table 2-4 for a discussion of flammability by age class.

Comment 486: Commercial thinning to a 40% canopy closure in the LSR is never appropriate especially in areas outside the burn. This is logging old growth and is unacceptable.

Response: There would be no removal of old growth trees. There is no objective of thinning down to 40 percent canopy closure. Canopy closures would remain above 40 percent and generally above 50 percent after thinning.

Comments 389 and 390: Commercial logging of 811 acres of late-successional forest stands within a LSR, within CHU, within a Key Watershed is not actually "restoration." The NFP standards and guidelines for commercial thinning within LSRs clearly limit thinning to stands younger than 80 years of age. (NFP C-12)

Response: The Pine Restoration proposal is based on the recommendation for "Risk Management in Stands over 80 Years with Pine" in the LSRA (USDA and USDI 1998, 165) and included in the DEIS (Appendix B, page B-25). This recommendation follows the NFP-ROD "Guidelines to Reduce Risks" (USDA and USDI 1994b, C-12 and C-13) and meets the exemption criteria included in the 7/9/96 REO exemption criteria and reviewed by the LSR Working Group. The analysis of the harvest acres is included in the direct, indirect, and cumulative effects of the restoration projects and summarized in Tables 2-2 and 2-3. The treatment of the acres on pine sites, under large overstory pine, where pine regeneration is nonexistent, is meant to regenerate pine in these stands and help assure the survival of the large pine. Competition from dense Douglas-fir and incense cedar in the understory, due to lack of fire from fire suppression, has not allowed pine to regenerate. Douglas-fir and incense cedar compete with large pine on those dry sites for survival. Removal would primarily consist of trees that are a result of this fire suppression.

Comments 474 and 488: The DEIS was not clear about canopy closures for restoration projects. How much would the present landscape be changed? Would the Oak Woodlands restoration plan be an enhancement of an area that is already open oak woodlands or would this area be created by harvesting old growth? It was not clear how much Douglas Fir and Incense Cedar would be removed or what size they would be. How large an area around the edges of the meadows would be cleared.

Response: The Oak Woodlands restoration is an enhancement of existing oak woodlands. Removal of Douglas-fir and incense cedar would be limited to small diameter trees (maximum of 6-8" DBH), with the objective of enhancing oak woodlands and meadows by reducing fuel ladders and removing trees that compete with pre-European age oaks and pines for water and other resources. Thinning will continue into the transition zone between conifer stands and oak woodlands. Only conifers less than 8" DBH in the transition zone between meadows and woodlands would be cut. Transition zones vary in size, but represent an area between open meadows or savannas and denser woodlands that contain trees and shrubs that are present as a result of fire suppression. Variable treatments, as described in Section 2.3.2.2 (Vegetation Restoration Projects) and Appendix E (Oak Woodland and Meadow Restoration), would be applied on a site-specific basis to different habitat patches.

Comment 167: Furthermore, creating permanent fuel breaks (i.e., Fuel Management Zones) within critical habitat will further degrade the value of the habitat to the owl.

Response: Dispersal and foraging habitat would be maintained. FMZs will degrade suitability for nesting habitat along ridgetops, but owls rarely nest on ridgetops. The habitat degradation will be offset by the insurance value of the FMZ to reduce the potential for spread of large stand replacement fire. Only smaller diameter material is to be removed (8˝ DBH and less) in green stands outside the burn (see Appendix E – FMZ project description). The discussion of FMZ impacts has been expanded in the Final EIS environmental consequences Alternative G owl section.

Comment 221: The DEIS lacks any disclosure of the age of the stands affected by the FMZs.

Response: Appendix E (Proposed Restoration Projects) Fuel Management Zone (FMZs) describes the treatments and states the "majority of the conifers cut would be 6" DBH and less." It also states that approximately 62 acres in Alternative G would be proposed for commercial thinning. These trees would generally be less than 80 years old.

Comment 225: The EIS lacks any analysis of whether the FMZs would be located in LSOG.

Response: All the FMZs outside the burn (800 acres) are in LSOG. The proposed FMZs within the burn (500 acres) were LSOG before the fire. Since only material 8" DBH and less is to be removed in the FMZs outside the burn, any areas that are LSOG will remain LSOG.

Comment 226: Retain the largest snags in fuel breaks, in part because many bat species rely on the favorable thermal properties of snags located on or near ridges. (B-14, B-15). But the BLM proposes only to cut the stumps high.

Response: Leaving the largest snags in those areas would not meet the objectives of the fuel break. It has been recently learned that stumps with thick bark, located where exposed to direct sun light, can provide roosting sites for bats. The taller the stump, the better it fulfills this purpose (USA and USDI 1998, Appendix B, p.155). Retaining snags in the FMZs within the burn defeats the purpose of the fuel break, since snags are at high risk of combustion from radiant heat. The thermal properties for bats of snags on ridges are also amply met by snags retained on south aspects. Bats will roost in loose bark and crevices in stumps. A new PDF has been added to Section 2.3.1.3 to leave higher stumps in the salvaged portions of the FMZs.

Comment 228: Page F-12 discloses that the effect of salvage on fuel profiles is very complex and there is no data or analysis to support conclusive statements, yet the EIS is bold enough to crudely oversimplify the issue and assert that simply removing most the large dead trees will reduce fire hazards. This is arbitrary and capricious. Page K-6 confirms that the salvage treatments will have little effect on fire hazard. But K-6 must also disclose and consider that fire hazard is most closely related to factors such as slope and weather, and whether we salvage this landscape as proposed or do nothing, in 20 years there will be enough fuels to feed fire. Whether it will be a large or small fire depends largely on temperature, humidity, fuel moisture, slope, wind speed, etc.

Response: The EIS does not state that removing most of the large trees will reduce fire hazards (see Section 3.10.2.1, Fire and Fuels, Fire Behavior). Appendix M, Fuels, shows how large wood can affect future fire severity.

Comment 231: The Fuel Management Zones (FMZs) will very likely not be maintained in a low fuel condition due to lack of funds and lack of agency commitment. The end result will be a future brush field or dense reprod along all the FMZs.

Response: Funding for implementation has been requested through the normal Bureau budget process. Funding for maintenance will follow the same procedures.

Comment 232: The FMZs may also start out in a very dangerous condition with excessive logging slash that actually increase fire risk. The EIS has not disclosed this risk. Proposed “safety zones” in FMZs are huge devegetated areas and not consistent with LSR objectives.

Response: Unburned understory vegetation and slash from logging operations would be piled and burned as warranted (see Section 2.3.2.3, Fuels Treatment Projects, Project Description).

Comment 285: Outside the community zone the Forest Service should focus on restoration using non-commercial treatment using hand crews and prescribed fire. The Forest Service must focus on treatment that can be maintained, and do not required repeated entries with heavy equipment that will violate soil standards and exacerbate concerns about hydrology, wildlife, weeds and water quality.

Response: This comment is for the US Forest Service. The EIS addresses only BLM-administered lands.

Comment 303: Recent literature has found that the rapid re-establishment of dense conifer stands typical of many reforestation efforts tends to substitute spatial uniformity for spatial variability and creates the potential for future uncharacteristic fire behavior. Furthermore, if not carefully designed, fuel hazard reduction and other vegetative treatments also can cause net ecological harm. Effective fuel treatment projects need to simultaneously consider ground, ladder and canopy fuels as well as the retention of large trees of fire resistant species. Most importantly, treatments must avoid the pitfalls of a project design process that considers only the issue of fire and/or trees and instead encompass the needs of the ecosystem as a whole.

Response: Proposed salvage and restoration treatments were designed in an interdisciplinary setting using an ecosystem approach to meet the multiple objectives identified in Section 1.3.1.

Comment 316: The Timbered Rock DEIS also feeds the coffers of the timber companies under the guise of the creation of Fuel Management Zones. It can’t be for the sake of the forest that FMZs will be created. The Spring Salvage Timber Sale Level 2 Consultation of March 1998 determined that FMZs were ineffective in stopping the spread of high-intensity fire, serving only to deter the lower intensity ground fires that a forest needs to stay healthy. The tree plantations that will grow in the new FMZs will only serve to make high intensity fires more likely in the area, as their highly flammable young trees replace the more fire resistant old growth trees that were sacrificed for the sake of the timber companies’ bottom lines.

Response: In reviewing the Level 2 Consultation for the Spring Salvage Timber Sale, there are some major differences between the Spring Salvage Timber Sale and this EIS. The BLM is proposing to leave six snags per acre versus two snags per acre, proposed in the Spring Salvage TS. The majority of FMZs proposed in this EIS (66 percent) are shaded rather than total removal, as proposed in the Spring Salvage TS. Also, the Spring Salvage proposal was adjacent to wilderness and this EIS is not. A description of the proposed FMZ projects and maintenance of the FMZs is provided in Section 2.3.2.3 (Fuels Treatment Projects, Project Design Features).

Comment 391: The DEIS calls for 17 miles of FMZs impacting "up to 1,300 acres. (DEIS 3-181) "Ridgeline FMZs outside the burn area would make 400 to 600 foot wide strips unusable as owl habitat." Clearly this logging proposal is not beneficial to the creation of late-successional forest conditions within the LSR. The BLM claims, without analysis or citation, that FMZs would provide so-called "long-term insurance value" reducing the risks of large stand-replacement fire. (DEIS 3-181)

Response: The quoted passage has been edited to say "ridgeline FMZs … would slightly degrade owl foraging habitat, due to removal of stems 8" DBH and less." The impacts discussion has been expanded in the Direct and Indirect Effects Section of 3.12.3.1 (Fire and Fuels).

Comment 397: The impacts and costs of FMZ yarding and post-project FMZ maintenance are not fully disclosed or analyzed in the DEIS.

Response: Yarding that is proposed was analyzed in the logging costs. Costs for maintenance are not known at this time. The timing of retreatment is dependent on vegetation growth and will be based on site conditions. This analysis includes the initial thinning, underburn in 2-5 years and a second underburn in 10-15 years. Any maintenance after that time would be analyzed.

Comment 477: Large fire breaks and further logging will fragment the habitat even more. Pg 2-67 in the DEIS states that, "FMZs increase protection of late-successional habitat but reduce canopy cover." This is a contradictory statement since late-successional species depend on a closed canopy. Therefore, reducing the canopy will not be protecting habitat.

Response: Canopy reduction will occur primarily in areas receiving commercial thinning treatments. The canopy cover would not be reduced below a minimum of 40 percent. This treatment is proposed for about 60 of 800 acres or approximately 8 percent of FMZ acres proposed.

Comment 493: These [fuel breaks] are too large and take up too much of the landscape. It was not clear if these are to be shaded or stand replacement fuel breaks. Some are planned in roadless unburned areas such as 33S1W Sec 13. Do not build fuel breaks in these areas or around the SW watershed perimeter. It would be like putting a road through the landscape. The watershed is in its natural range of variability for fire return so logging green old growth is unacceptable and will contribute to fire risk.

Response: The fuel management zones are designed as shaded fuel breaks (see project description in Appendix E, Proposed Restoration Projects). There are no BLM designated "roadless areas" within the project boundary. The FMZs on the southwest corner are designed to provide protection to the residences in that vicinity. This area is adjacent to Wildland Urban Interface (see Map 2-5, Fuels Management Projects). No logging of green old growth is proposed. See response to comment 21 in Section 5.4.3.12 for the natural range of variability.

Comment 494: Massive fuel breaks are inappropriate in LSR old growth but might be OK between federal land and private homeowners.

Response: The proposed FMZs are recommended in the LSRA.

Comment 495: Fuel breaks must be maintained about every two years to be effective. The costs should be analyzed.

Response: Maintenance treatments of FMZs were described in Appendix E (Proposed Restoration Projects), project description. Timing of retreatments will be site-specific, do not fit on a calendar schedule, but would not be required every two years.

Comment 496: Removing large trees in fuel breaks leads to an increase in soil and air temperatures. The soil dries out. This could lead to decrease in microclimate characteristics and wider temperature swings.

Response: There is no proposal to remove large green trees within the FMZs. Only fire-killed trees are to be removed within the burned area (see Appendix E for project description).

Comment 497: Fuel breaks would be on ridge tops with erosive soils and could have a similar effect as road building.

Response: Soils impacts and issues were described in Section 3.3.3.4 (Soils, Soil Erosion).

Comment 498: Fuel breaks are barriers to the movement of some wildlife, sources of sedimentation and islands of damaged soil. Thinning of brush and small trees should be used to reduced fire risk

Response: That is exactly what is proposed (see Appendix E for project description). Soil and wildlife impacts are discussed in those sections.

Comments 284 and 393: The small amount of fuel reduction benefits from this project are also short-lived and will last only about 10-15 years at which point another entry will be required.

Response: The intent is to simulate natural fire occurrences intervals. Multiple treatments are part of the long-term plan to maintain conditions in the desired state, and are addressed as such in this EIS (see Appendix E project description).

Comment 258: Prescribed fire in owl centers should be deferred until the owl habitat has recovered somewhat from the fire.

Response: The owl center underburns would not be treated for at least three years or until fuels conditions warranted treatment.

Comment 259: Because this is an LSR, the BLM must retain all pre-fire-suppression trees in the thinning, pine restoration, FMZ, and oak restoration treatments.

Response: This is not a Standard and Guide for LSRs in the NFP nor is it recommended in the LSRA.

Comment 489: The practice of renovating or partially decommissioning roads that will continue to deteriorate is questionable. Either improve the roads with rock and appropriate stabilization structures or fully decommission them.

Response: An interdisciplinary team was used to evaluate which roads to improve, renovate, or decommission. Recommendations from the LSR Assessment and WA were considered in these decisions. Reciprocal right-of-way agreements placed some constraints on road decommissioning.

5.4.2.4 Alternative A (No Action)

Comment 304: We suggest that alternative A (which as the “no action” alternative does not include any salvage, fish habitat improvement, vegetation treatment, fuel treatment, wildlife, or road project activities) could include a research element coordinated either with the PNW or PSW research station or with a university (e.g., Southern Oregon University, Oregon State University, or other institution) to explore and examine questions associated with natural post-fire recovery.

Response: NEPA requires a “no action” alternative in all EISs. No action was determined to mean no proposed actions and continuation of current management. Including research would not be consistent with the “no action” alternative as described. Although implementation of any action alternative would still provide an opportunity “to explore and examine questions associated with natural post-fire recovery,” the BLM would consider additional research proposals related to post-fire conditions.

Comment 281: The EIS also fails to disclose that NOT salvage logging (e.g., natural recovery) may have some counter-veiling benefits in terms of fire risk and reburn potential, including: (a) large logs store water, (b) standing snags provide some shade, (c) regrowth tends to be more patchy and less dense and continuous, (d) fuels in the form of branches and dead trees fall to the ground slowly over time and have a chance to decay as they added, (e) falling snags over time ten to break up the continuity of fuels in the form of brush and reprod.

Response: Sections 3.6 (Vegetation) and 3.10 (Fire and Fuels) discuss the No Action alternative and the consequences of not salvage logging.

5.4.2.5 Alternative B

Comment 266: Please consider at least one non-commercial, restoration-only alternative that invests in restoration and recovery of the fire area by, for instance, eliminating livestock grazing, emphasizing native species recovery, not building any new roads, stabilizing soils disturbed by the fire suppression effort, decommissioning unneeded roads.

Response: Alternative B has no salvage proposed and considers only noncommercial restoration activities.

5.4.2.6 Alternative C

No comments were received.

5.4.2.7 Alternative D

No comments were received.

5.4.2.8 Alternative E

No comments were received.

5.4.2.9 Alternative F

Comments 252, 257, 275, 305, 378, 446, 469, and 480: The BLM failed to consider reasonable alternatives such as one based honestly on the Beschta report. The alternative that is purportedly based on the Beschta report fails to adhere to some of the most important recommendations such as retaining all large and old trees and 50% of each smaller size class. This [Alternative F] is not really a Beschta Alternative because there is no upper diameter limit to salvage even though he recommends leaving 50% standing dead trees in each diameter class. Besechta [sic] et al. (1995) warned that even temporary road construction should be prohibited on burned landscapes.

Response: Alternative F is based on *Recommendations for Ecologically Sound Post-Fire Salvage Management and Other Post-Fire Treatments on Federal Lands in the West* (Beschta, et al. 1995). Applying all the guidelines of this report would have resulted in a no salvage alternative. Alternatives A and B analyze the no salvage option. Section 2.5.1.3 (Alternatives Considered but Eliminated from Detailed Analysis) describes the rationale for not including all the guidelines within this report. Salvage proposals do not include harvesting of live trees with the exception of an occasional live tree needed to facilitate salvage activities, as described in Section 2.3.1. All alternatives protect a distribution of snag sizes. “Old snags” existing pre-fire would also be retained. The expected level of snags retained and harvested by alternative is shown in Figure 2.3-2. Alternative F does not include construction of any new permanent or temporary roads, as suggested in Beschta, et al.

Comment 378: Page 2-39 of the DEIS informs the reader that the so-called “Beschta Alternative” does not actually reflect the findings of the 1995 study upon which the (throw away) alternative is allegedly based. The BLM states “the recommendation to leave all trees greater than 20" DBH was not adopted. Objectives of this EIS are economic recovery as well as LSR restoration.” Hence the supposed “Beschta Alternative” is not actually based on the findings contained in the study. It is merely used by the BLM as a way of padding the DEIS.

Response: 40 CFR 1502.14 (a) states, “Rigorously explore and objectively evaluate all reasonable alternatives,…” It is not reasonable to assume that salvage logging restricted to 16-20" DBH is implementable. The 16" lower limit is set by delay in salvage logging and associated decay of wood fiber and the 20" upper limit would be set by restrictions contained within the “Beschta Report.” Nonetheless, we do feel that Alternative F proposes actions that implement the spirit of the Beschta Report. Also, see question 2b in NEPA’s Forty Most Asked Questions.

Comments 14 and 470: Beschta also recommends that hazard trees be left by the road rather than hauled out. ‘Hazard’ trees should be felled and left along the road, as suggested in the NFP, leaving the wood for species associated with LSRs.

Response: Hazard trees felled along roads in riparian areas and Northern Spotted Owl activity centers would be left on-site except for the portion of the tree felled across the road. Leaving of cut hazard trees outside of these areas was considered

but it was determined the levels of coarse woody debris prescribed in Alternative G would be provided for outside of the hazard tree areas. It is also anticipated that some hazard trees felled would not be of any economic value and be left on-site to provide additional coarse woody debris. We found no reference in the Beschta Report recommending either leaving or hauling hazard trees felled by the road.

Comment 530: Since high and moderate burn severity areas pose the greatest risk in terms of accelerated erosion and sediment yield to the watershed's streams and creeks, alternatives that propose area salvage logging only on low and very low burn intensity areas should have been considered.

Response: Limiting salvage logging to low and very low burn severity areas is incorporated into Alternative F to the degree practical (see Section 2.4.6, Alternative F).

Comment 267: [C]onsider an alternative modeled on the recommendations of the Beschta report.

Response: This is the design focus of Alternative F (see Section 2.4.6, Alternative F, Salvage Logging and Restoration Actions Focused Only within the Timbered Rock Fire Perimeter). However, it was not possible to incorporate all the recommendations included in the Beschta Report and still have an implementable alternative. Nevertheless, we feel the spirit of the Beschta Report is included in Alternative F. Also, see Section 2.5.1.3 (Alternatives Considered but Eliminated).

5.4.2.10 Alternative G (Preferred Alternative)

Comment 405: Alternative G is inconsistent with the NFP, RMP and LSRA (DEIS 2-63), will result in increased erosion (DEIS 2-69), and will increase sediment delivery to streams (DEIS 2-70).

Response: The DEIS acknowledged the increased erosion and some increase in sediment to the streams. This is not inconsistent with the NFP, RMP, or LSRA. These documents do not prohibit increases in erosion or increased sediment delivery to streams. They require meeting Riparian Reserve S&Gs and ACS objectives.

Comments 318 and 524: The preferred Alternative G is seriously flawed because it does not provide a timetable or certainty of funding for decommissioning of existing, and recently constructed/reconstructed roads that are likely to increase the occurrence of landslides.

Response: This issue is addressed in Section 1.2.3, Controversy. Only temporary spur roads would be constructed to implement salvage logging and they would be rehabilitated in the same use season. On a cumulative effects basis, Alternative G proposes decommissioning 35 miles of roads which greatly exceeds the amount constructed on industrial forest lands to conduct salvage operations. Funds have been appropriated by Congress and allocated to conduct emergency stabilization and rehabilitation within the fire perimeter. Many of the restoration projects occur throughout the watershed and are not tied to effects from the fire and require a separate funding request. As stated in response to comment 251, it is anticipated the restoration projects will be implemented over a 2-10 year period and funding has been requested through the BLM budgeting process.

Comments 68, 70, and 78: The preferred alternative was not defined as to why it was better than any of the other ones; it was simply the "preferred choice" of the lead agency. From the information provided, the average person could probably not make informed decision on the project [sic]. This is because the criteria used to eliminate the alternatives are not stated.

Response: Regulations at 40 CFR 1502.14 state that agencies shall "(e) Identify the agency's Preferred Alternative or alternatives…in the draft statement…" It is customary in the BLM to identify the Preferred Alternative in both the Draft and Final EISs. Rationale for the selection of a Preferred Alternative or the Decision is presented in the Record of Decision. In this case, the Preferred Alternative best meets the Purpose and Need and objectives presented in Chapter 1. Also, see question four in "NEPA's Forty Most Asked Questions."

Comment 404: Page 3-109 indicates that the BLM is aware that the 120 acres of clearcutting proposed in the science project will in fact not meet LSR, CHU, NFP, and RMP requirements for woody debris, soil replenishment and nutrient cycling. Clearly the supposed concern for meeting "LSR and watershed objectives" stated in the alleged purpose and need, will not be met by implementing these clearcuts. 120 acres of clearcutting within the LSR (some within Riparian Reserves) will diminish habitat sustainability now and in the future.

Response: The comment in the DEIS, page 3-109 is specific to the salvage acres in the research only. Overall, the level of CWD in the proposed salvage areas, including research salvage, would meet or exceed DecAID recommendations consistent with Alternative G. The research has been reviewed and is consistent with the LSR objectives as described in the NFP (USDA and USDI 1994b, C-18).

Comment 126: The DEIS acknowledges these facts: "[a] review of scientific literature indicates management activities (slash burning, timber harvesting, and associated skid trails,) or large-scale fires have a tendency to increase mass movement." These effects endure for decades. Finally, the DEIS acknowledges that 80 percent of the Elk Creek Watershed have been entered for timber harvest since 1970. Alternative G (Preferred Alternative) advocates salvage operations within the fire perimeter. This recommendation ignores recent scientific opinion and contradicts statements made within the DEIS.

Response: The DEIS proposes removal (salvage) of dead trees only within the fire perimeter; no live trees are proposed for harvest. This action, or no action, will have essentially the same effects on the incidence of mass wasting along the uplands. This is primarily due to reduced evapotranspiration and root strength (see Section 3.3.3.1, Mass Wasting – Uplands), "… management activities … timber harvesting (live trees)… or large-scale fires (dead trees) have a tendency to increase mass wasting..." As stated in Section 3.3.3.1 (Mass Wasting – Uplands, Effects Common to Alternatives B, C, D, E, F and G on Mass Wasting Uplands, Salvage, Direct, Indirect and Cumulative Effects), "As related to landslide hazards, … effects of the removal of fire-killed trees … would be quantitatively indistinguishable from the No Action Alternative [i.e. no salvage of dead trees]." Section 3.3.2.1 (Mass Wasting – Uplands, Post-fire) states, "Scientific literature (McIver and Starr 2000) implies large-scale fire … has similar effect on slope stability as large-scale timber harvesting." The past tree harvesting within the watershed ("about 80 percent of the area") produced a cycle of weakened slope stability conditions due to reduced evapotranspiration (ET) and root strength. It can be reasonably concluded that little additional mass wasting can be expected in these areas as a result of the salvage of dead trees.

Comment 460: On pg 30-under Objectives that; "one maintains most of the large amounts of dead wood that are contributed to the landscape following stand replacement events; and one that results in an exemption from further REO review for conservative amounts of salvage." This project has not incorporated upper diameter limits and plans, in the preferred alternative, to harvest more in specific sites than is left on the ground.

Response: The LSRA provided a level of salvage to consider which provided an exemption from further REO review. This salvage level was considered in Alternative C. The BLM reviewed Alternative G with the LSR Working Group and they determined the propose salvage levels using DecAID snag and CWD recommendations would meet LSR guidelines in the NFP. Each alternative provides a distribution of tree sizes to be harvested and retained. This distribution is displayed in the FEIS in Figure 2.3-2.

Comment 471: Alternative G (Preferred Alternative) a High Salvage Volume Leaving 12-15 snags per acre is not enough. In some place it could be as low as 6 snags per acre and they would be small as only the larger trees are merchantable at this time.

Response: The level of snags for the area salvage units are 8 snags per acre greater than 16" DBH, and 12 snags per acre greater than 16" DBH. This meets or exceeds recommended levels in the DecAID Wood Advisor. Snags levels would be met in the unharvested areas outside of the salvaged units. The level of snags in the research proposal includes leaving 6 snags per acre 20" DBH or greater.

Comment 1: Preferred Alternative "G" calls for …some of the most damaging logging methods possible -- including 1,888 acres of ground-based tractor yarding and 1,051 acres of bull-line yarding

Response: These acres were an error found in the Soils section of Table 2-2. Actual acres for Alternative G should have been 70 acres of ground-based tractor yarding and 967 acres of bull-line yarding. These acres were properly identified in the Alternative G description in Section 2.4.7 and other places throughout the document. In the Final EIS, Alternative G identifies 113 acres for tractor yarding, 1,223 acres for bull-lining, 402 acres of skyline, and 411 acres of helicopter (see Table 2-2). This includes roadside salvage.

Comment 6: The Preferred Alternative G, is just that calling for logging over 24 million board feet (the equivalent of over 12,000 logging trucks) from within the LSR. It is unacceptable to me.

Response: Generally, log trucks transport about 5,000 board feet per load, resulting in slightly less than 5,000 trips if 24 MMBF is salvaged.

Comment 12: The LSR guidelines of the Northwest Forest Plan indicate that the BLM is only allowed to salvage in an LSR where the live canopy is less than 40%. I do not see this in Alternative G.

Response: Section 2.3.1.1, Area Salvage, states "Alternatives C, D, and G focus on high and moderate burn severity areas greater than 10 acres and less than 40 percent canopy closure." Additional description of Alternative G in Section 2.4.7 discusses salvage occurring in high and moderate severity areas greater than 10 acres. These areas are typically stand-replacement areas with less than 40 percent canopy closure. Section 2.4.7 and Table 2-1 have been edited to include this detail and provide consistency with other alternative descriptions.

Comment 356: The DEIS indicates that the preferred Alternative G would have the greatest potential to directly affect stream temperatures, especially on these 14 acres of Riparian Reserves that are targeted for a research salvage cut prescription of 100% with 6 snags/acre. This is significant if the 14 acres of riparian reserve are adjacent to 303(d) waters. The FEIS must demonstrate that anthropogenic actions proposed in the Action Alternatives will not result in further temperature impairment to 303(d) waters.

Response: The 14 acres (11 acres in FEIS) of proposed salvage in Riparian Reserves are not adjacent to 303(d) listed waters and would not result in further temperature impairment to 303(d) listed waters. Approximately one acre is in the headwaters of a first order intermittent tributary. This is not adjacent to the stream channel, but in the tip of the Riparian Reserve. The other streams where Riparian Reserves would be entered are also intermittent and would not contribute to increases in downstream temperatures because these streams are dry during the summer when stream temperatures are high. The amount of acres to be entered in the Riparian Reserve represents approximately 0.2 percent of the Riparian Reserve acres in the Elk Creek Watershed.

Comment 413: Page 3-219 of the DEIS indicates that the BLM intends to highgrade and yard large diameter snags from "pockets of dead trees" that are larger than three acres. The NFP standards and guidelines for LSR management indicate that the BLM should consider felling and leaving "hazard" trees on site and that commercial logging in stands smaller than 10 acres is inappropriate.

Response: The reference to the statement "…pockets of dead trees less than three acres" in Section 3.16.3.2 of the DEIS is an error and was intended to state "less than ten acres." This statement has been removed in the FEIS.

Comment 13: It [NFP] also calls for the retention of all live trees in the LSR, yet Alternative G calls for 'green-tree' logging, as well.

Response: The "green-tree" logging included in the Alternative G salvage proposal includes the potential need to remove green trees for access or logging feasibility. The Standard and Guidelines of the NFP for salvage in Late-Successional Reserves (USDA and USDI 1994b, C-15) recognizes, in guideline number 11, some green trees may need to be harvested to provide access or feasible logging operations. Some restoration projects include "green-tree" logging. These projects are consistent with the S&Gs from the NFP and based on recommendations in the South Cascades LSRA.

Comment 349: Of note are proposed actions to eliminate grazing, the removal of some tributary irrigation withdrawals, the improvement and obliteration of roads and providing management of oak meadowlands.

Response: This EIS does not propose "eliminating grazing" or "the removal of some tributary irrigation withdrawals," as suggested.

Comments 20 and 310: I see 811 acres of old growth logged for 'pine release.'

Response: There are 811 acres of potential pine release identified in stands with pine greater than 20" DBH. The intent is to remove vegetation within a 20' radius of the dripline of the existing pine over 24" DBH. This is to encourage pine regeneration where it is presently nonexistent, due to encroachment of dense shrub and other conifer vegetation as a result of fire exclusion. In very few cases would trees greater than 18" DBH be removed and pine would be retained. The LSR assessment for this LSR states, "Remove competing vegetation, as needed, up to 24" diameter to the drip line plus 20 feet" (USDA and USDI 1998, 165).

Comment 180: Instead of using the more conservative 80% species tolerance thresholds, the EIS uses DecAIDs lower 30-50% species tolerance thresholds, which is totally inappropriate in a LSR.

Response: The Preferred Alternative, Alternative G, uses the 50-80 percent thresholds for the White Fir plant series and the 30-50 percent threshold for the Douglas-fir plant series. These thresholds were similar to other local and regional snag and CWD references (see DEIS Appendix D). In the DEIS (Appendix D, page D-30), it is noted that levels of snags and CWD are anticipated to be higher than these thresholds because of the number of trees in the 10-16" DBH range which would not be merchantable in the units because of the delay in implementation of the salvage activities. Analysis of higher DecAID thresholds was completed in Alternative D. It used the 80 percent thresholds for White Fir plant series and the 50-80 percent threshold for the Douglas-fir plant series.

5.4.2.11 Research

Comment 82: With respect to the preferred Alternative G, I found it disingenuous for the BLM to propose a research project with the potential to provide important data in 328 acres of salvage units, in conjunction with additional salvage logging of 1,051 acres outside of the research units. A total of 1,379 acres would be salvaged in experimental units and remaining units. The inclusion of the "remaining area" salvage in this alternative diminishes what might otherwise be a useful research proposal that would receive support from scientists like myself.

Response: The Preferred Alternative is designed to meet all the objectives as described in Section 1.3.1 (Objectives). The inclusion of the research was designed to meet Objective 8, "Where appropriate, conduct scientific investigations that could be implemented within the LSR to respond to controversial issues and scientific uncertainties related to salvage of fire-killed trees or fire effects on critical resources." The inclusion of the "remaining area" salvage would contribute to meeting Objective 7, "Recover some economic value of fire-killed trees while meeting LSR and watershed objectives." Opportunities for additional research exists and will be evaluated when proposed.

Comment 307: It is highly unlikely that a study superimposed upon any of the alternatives offered will produce credible results. The treatment should not dictate the study. The study design must come first, with the treatments planned to answer the well-thought out questions.

Response: The studies are independent submissions designed by the researchers. The BLM provided the researchers the opportunity to submit research to test critical assumptions of the NFP Standard and Guidelines. The BLM also provided information regarding areas meeting the research criteria. Since the publishing of the DEIS, the study design has been peer reviewed and adjustments made based on these reviews to provide for credible results. The revised research proposals are included in Appendix G. The critical part of the proposed research is that it was designed prior to salvage and salvage is responsive to the research, as suggested in the comment.

Comment 365: However, the DEIS is not clear on whether or not the funding for the actual research is available. If funding is not available to conduct the research, it is possible that the cut prescriptions for research will be applied through salvage without the subsequent funding for research. Consequently, salvage research cut prescriptions which are not consistent with the NFP would be implemented without the accompanying study. Therefore, proposed research cut prescriptions should not be implemented until funding to complete the bird and wildlife research is secured.

Response: While it would not be a good thing to implement the salvage prescription and then not fund the research, the effects of implementing the research is analyzed in Chapter 3, consistent with NEPA. The assumption is made that if the research is included in the Record of Decision, then it will be funded. However, inclusion of the wildlife-related research reduces potential salvage acres by 2 acres and volume by approximately 1.7 MMBF. Research funding has been requested through the BLM budget process and the "Application of Science" program.

Comments 81 and 103: I believe it is important to conduct research on the effects of salvage logging on wildlife; however, because wildfire is a natural and necessary part of forest dynamics and salvage logging is not (in fact, the Late Successional Reserve Assessment states that there is no ecological reason to salvage), I feel that research efforts and limited money would be better spent investigating the long-term impacts of wildfire on biological resources in the absence of salvage logging.

Response: The EIS is consistent with this statement in the LSRA as it did not define any "ecological reasons" for the proposed salvage. But, as stated in Section 1.2.2, the Timbered Rock Fire focuses on the need "To assess the possibility of

economic recovery of fire-killed trees (salvage) within the fire perimeter, consistent with LSR objectives." As previously stated, the BLM would consider additional research proposals in the Timbered Rock Fire area, including research proposals in the unsalvaged areas. The wildlife research component includes control units that would not be salvaged.

Comment 72: What the document does not do is provide complete information from research related to post-fire conditions or activities (such as the effects of large dead woody debris on the landscape). This is a part of the need statement, which is referred to in the document, but it is never stated that there was any research completed.

Response: Available research related to post-fire conditions was reviewed and used as reference throughout the document. The bibliography lists the numerous references used in the document. The need statement is a reflection that additional research may be needed relating to post-fire conditions and the EIS provides an opportunity to conduct this research. The research is part of the proposal and was not intended to be completed prior to initiation of the other proposed actions.

Comment 73: Throughout this section, it is mentioned that there needs to be more research done on functions of large dead wood and effects of coarse woody retention (pg 3-108, 3-109). This research could be fulfilled by looking into similar historical fires and using any salvage data found from those projects.

Response: The BLM would consider additional research proposals related to post-fire conditions. We agree historical fires could provide opportunities for research and the BLM sponsored a field trip with researchers from OSU, PNW, and USGS to visit past fires and take a retrospective look at these fires. The observations of the scientist visit can be found in Appendix F.

Comments 63 and 534: Data comparing surface erosion rates from logged versus unlogged burned hillslopes is extremely limited. The preferred Alternative G presents a unique opportunity to conduct such research. Boise Cascade Corporation would be willing to assist the BLM in designing and implementing just such a project.

Response: Field monitoring is currently being done for water quality. Research related to sediment delivery has not been suggested, but would be evaluated if proposed. The BLM would consider additional research proposals or research on adjacent land which compliments the proposed research in the Preferred Alternative.

Comment 55: Under any successful alternative, the BLM should consider working with Oregon State University to describe a series of research efforts, related to post fire harvest operations that address the NEPA concerns, which continue to plague the agency and prevent them from moving forward after events like this.

Response: Throughout the development of the DEIS, the BLM worked with OSU scientists in developing research related to post-fire harvest. As noted in Section 1.5.1, Scoping, and Appendix F, OSU scientists visited the Timbered Rock Fire and other past fire areas in the Butte Falls Resource Area on two occasions. The scientists were asked to identify research questions which could be analyzed in this EIS. The included research is the result of this request. BLM would consider other research proposals to address post-fire issues. It is hoped this EIS assists in implementing Objective 9, "Analyze effects associated with fire salvage so future efforts can be tiered to this analysis" (see Section 1.3.1).

5.4.2.12 Range of Alternatives

No comments were received.

5.4.3 Chapter 3

No comments were received.

5.4.3.1 Affected Environment (General)

No comments were received.

5.4.3.2 Environmental Consequences (General)

No comments were received.

5.4.3.3 Cumulative Effects (General)

Comment 106: Please, please, take into consideration the entire landscape and see that protecting this LSR and not entering the burned area will do more for recovery than Alternative "G" provides.

Response: The effects of not conducting salvage or restoration actions are described under Alternative A. The effects of conducting salvage and restoration are discussed under each alternative.

Comment 468: Trail Creek Timber Sale to the west and the proposed Flounce Around Timber Sale to the south in the Lost Creek watershed will add to the cumulative effects of this project. Please consider deferring these sales for a few years so plants and wildlife can disperse and recover.

Response: The Trail Creek North and Trail Creek South Tiber Sales have already been sold. The Flounce Around Timber Sale is scheduled for fiscal year 2005. Additional analysis was added to Alternative G, Cavity Nester Cumulative Effects (see Section 3.12.4.2, Cavity and Down Wood Dependent Species, Alternative G, Cumulative Effects). Salvage would occur on approximately 8.7 percent of the acres burned in the Timbered Rock Fire. Approximately 10,754 acres of BLM land burned in the Timbered Rock Fire remain to provide habitat for cavity and down wood dependent species. On a landscape basis, these sales would have a very low effect on cavity nesters in the analysis area. These sales were considered in the cumulative effects analysis.

Comments 414 and 418: The DEIS assumes snags will be logged within 71% of the fire perimeter. (DEIS 3-219) The BLM's presumption that dead trees occur in excess numbers is unsupported, illogical, and ignores the ecological role of woody debris. Please modify the DEIS to address the ecological importance of woody debris and the undesirable ecological effects of removing it.

Response: The reference of 71 percent in Table 3.16.2 is not an objective. The title of the table is somewhat misleading and has been clarified in the FEIS. The values provided in Table 3.16.2 are a cumulative estimate of areas where snag levels, from a hazard perspective, will either be reduced in number or are currently low. This value includes pre-fire condition (plantations and non-forested areas), management activity on private lands, and activities proposed on BLM-administered lands. The level of snags and woody debris retained in Alternative G meets DecAID Wood Advisor recommendations and other local and regional recommendations. The effects of these retention levels were analyzed in the document.

Comments 379 and 401: And that "The cumulative impact of the adjacent sales was magnified by the wildfire." (DEIS 3-182) Given this, why is the BLM proposing a logging research project that will fell, yard and haul large diameter snags adjacent to occupied NSO sites?

Response: The acreage affected is relatively small, and adjacent patches of snags would be maintained. The value of information to be gained on wildlife impacts from the studies offsets the unknown risk of removal of some dead trees near three active owl sites.

Comment 35: The largest weakness in the DEIS is the failure to accurately display outcomes of the intended plans, so the public can understand future results. Nowhere in the DEIS is there a clear picture of 1] how trees grow, 2] that sites do recover, 3] soils stabilize, and 4] habitat stages are replaced, when trees are established and growing to fully occupy the site.

Response: Desired Future Conditions are described for all of the restoration projects and the reforestation projects in Chapter 2. The potential roadmap to attain these desired future conditions is summarized in Table 2-1, Table 2-4, and Table 2-5. Appendix K summarizes some predicted long-range stand conditions in the thinned stands. This Appendix has been revised to project thinned stands to the desired 80 year old stand described in the LSRA. Tables 2-4 and 2-5 were added to show anticipated trends and consequences of the reforested areas and the restoration projects in meeting these conditions. There is also discussion of future forest stands under direct, indirect, and cumulative effects in Section 3.6.3.1. However, EISs are meant to be analytic rather than encyclopedic in nature (40 CFR 15022).

Comment 112: The Timbered Rock DEIS does not adequately analyze the cumulative effect of previous wildfires within the Elk Creek Watershed and Elk Creek Late Successional Reserve (LSR).

Response: Effects from previous fires were analyzed when post-fire baseline data was established.

Comment 118: No mention is made of prior road building or road decommissioning efforts on private or public lands and the cumulative effect of such efforts.

Response: A discussion of roads, both pre and post -ire conditions is described in Section 3.3.2.3, Mass Wasting - Roads The effects of these past efforts can be found in the Environmental Consequences Section 3.3.3.3, Mass Wasting - Roads. The cumulative effects describes the effects of past, present, and reasonably, foreseeable future road building. The BLM is unaware of any past (pre-fire) road decommissioning in the watershed.

Comment 125: The Timbered Rock Fire burned 2,731 acres of USFS lands. Beyond stating that no salvage is anticipated on these lands, the DEIS does not discuss any other USFS management activities that could affect the Elk Creek Watershed.

Response: When requested, the US Forest Service did not indicate they had any other plans for management actions within the LSR.

Comment 155: In analyzing cumulative effects, the DEIS should be drawing comparisons between the effects of no action and the proposed action instead of attempting to mask the cumulative effects of the proposed activities behind the effects of the fire itself.

Response: Appendix N, Wildlife, Tables N-4 through N-9 compare the acres affected between the alternatives, and not to pre-fire. Cumulative effects have been analyzed in the context of the greater impact of the wildfire and subsequent salvage on non-federal lands.

Comment 350: The DEIS is limited in describing the cumulative environmental effects, particularly on water quality, of its proposed actions combined with the salvage logging activities on 6,000 acres of adjacent private and industrial forests in the affected wildfire zone.

Response: Refer to Section 3.4.3.1 (Water Quality Effects of Alternative A) for a detailed description of the effects from the proposed salvage logging of 6,000 acres of private forests. This describes the potential for sediment and the delivery mechanism to the stream resulting from these actions. It also acknowledges high watershed cumulative effects from past actions in these watersheds. Any additive cumulative effects from the proposed actions are detailed within each alternative.

Comment 358: Although the DEIS discusses cumulative impacts within the scope of proposed actions on federal forest lands, there is little assessment or adequate discussion of the combined indirect and cumulative impacts from the proposed alternatives and salvage operations occurring on adjacent non-federal lands.

Response: The reasonably foreseeable cumulative effects considered in this document can be found in Section 3.1.4. The BLM wrote letters to the major industrial and public landowners requesting information regarding their reasonable foreseeable plans for harvest and road building activity in the Elk Creek Watershed. A summary of the information they provided is in Section 3.1.4. This includes Section 3.1.4.5 (Forest Management on Industrial Forest Lands) which summarizes the planned activities on private lands based on information provided by the private industrial landowners. Specialists used this best available information in their cumulative effects analysis. The environmental consequences sections address direct, indirect, and cumulative effects of the actions proposed in each alternative plus actions on private lands and the effects of the fire and fire suppression actions. In addition, Table 2-3 (Cumulative Effects Analysis Summary), summarizes the anticipated cumulative effects within the watershed from Federal and private actions. It also includes effects of the Timbered Rock Fire and suppression activities and reasonable foreseeable future actions across all landowners. Based on these comments, the EIS team reviewed the cumulative effects analysis and provided additional information where they determined it was needed. See response to comments 110, 111, 279, and 417 in Section 5.4.3.3.

Comment 502: Cumulative Effects from private industrial forest logging and road building has contributed significantly to the hydrological problems in the watershed. This should be more thoroughly considered when federal projects are planned.

Response: This was addressed in Section 3.4.3.1 (Hydrology, Water Quality) under cumulative effects.

Comments 110, 111, 117, 279, and 417: The EIS fails to fully disclose the cumulative effects of livestock grazing, timber harvest, prescribed fire, and road developments on water quality, forest health, wildlife habitat, noxious weeds, cultural resources, and other resources.

Response: Chapters 3 (Affected Environment) and Chapter 4 (Environmental Consequences) were combined in this EIS to make it easier to review and to be consistent with the NFP and Medford District RMP EISs. For each resource addressed, the effects analysis is presented by alternative which is further divided by "salvage-direct and indirect effects," "restoration-direct and indirect effects," and then "cumulative effects" for that alternative. Furthermore, the "cumulative effect" analysis, as appropriate, summarizes effects from salvage and restoration, addresses effects from the fire and suppression efforts, and "reasonably foreseeable future actions" which includes actions on adjacent private lands. This information is further summarized in Table 2-3, Cumulative Effects Analysis Summary. This does complies with guidance included at 40 CFR 1508.7, as we did take a "hard look" at cumulative effects within the project area.

Comments 120, 43,2 and 440: The DEIS totally disregards significant impacts of suppression activities that occurred during the fire.

- Direct soil damage resulting from emergency road, fire line, and helispot construction.
- Hydrological impacts caused by fire lines, which route overland water flow and disrupt soil infiltration.
- Chemical pollution of water and soil from aerial flame retardant drops.
- Destruction of snags and other ecologically significant large woody debris.
- Spread of highly flammable noxious weeds.

Response: See Section 3.3.2.5 for discussion of suppression actions on soils, Section 3.4.3.1 for discussion of suppression actions on water quality, Section 3.5.3.1 for discussion of retardant effects on fish, and Section 3.8.3.1 for discussion of suppression actions on Special Status Plants.

Comment 141: The DEIS states that spotted owls are mobile enough to disperse to adjacent LSRs, but fails to consider that substantial portion of these adjacent areas are located on private land that has already been harvested or is in the process of being harvested.

Response: Owl dispersal habitat is not in short supply in SW Oregon. Some harvested private lands in adjacent watersheds have regrown to provide dispersal habitat. Even without the private component, there is ample dispersal habitat on Federal lands adjacent to the project area, as discussed in the Environmental Consequences Cumulative Impacts section (3.12.3.1, Wildlife). The Biological Opinion (USDI, USFWS 2003, 70) supports this contention. However, the LSR designation does not apply to private lands.

Comments 142 and 144: The proposed project poses serious cumulative harms to cavity and down wood species. These cumulative effects are not substantively analyzed or addressed in the DEIS. Because most of the surrounding private industrial forest lands have been heavily salvaged very little suitable habitat for cavity dependent species remains on these lands.

Response: Additional analysis was added to Alternative G, Cavity And Down Wood Dependent Species cumulative effects (see Section 3.12.3.2) Table 2-2, pages 2-53 and 2-54 in the DEIS indicates that under Alternative G, 87 percent of the fire-killed trees over 8" DBH on BLM-administered land would be retained in the salvage area. Seventy-six percent of the fire killed trees over 20" DBH would be left (see Figure 2.3-2, Distribution of Fire-Killed Trees by Diameter). In burned stands less than 10 acres and/or with greater than 40 percent live canopy, 100 percent of snags remain. Two snags per acre are left on salvaged private lands.

5.4.3.4 Land Uses

No comments were received.

5.4.3.5 Soil

Comment 242: Page 3-41 hints that salvage may be proposed in low intensity burn areas and may remove live trees. This is inconsistent with the proposed action.

Response: Area salvage is proposed in the low severity burn areas in Alternative E and F. These areas are not proposed for area salvage in Alternative G. Salvage of roadside hazard trees would include low burn severity areas. The BLM is not proposing to harvest any green trees in salvage, although some green trees may be removed for operational purposes.

Comment 492: Because of the site-specific nature of soils work, it is not really accurate to rely only on the Jackson County Soil Survey scale of mapping. This project might demand a level 4 or 5 scale of intensity rather than level 1 or 2. Site specific mapping should be done in the field before management plans are formulated.

Response: Post-fire field surveys were conducted on most units proposed for tractor yarding and some on the units proposed for cable yarding. Twenty-seven transects of twenty-five data points each were taken. This information was added to Section 3.3.1 (Soil, Methodology).

Comment 121: Data concerning present timber management operations is based on post-fire aerial photographs and limited field reconnaissance. These cursory methods are not conducive to the acquisition of "quantified or detailed information" concerning cumulative effects required by NEPA. The Timbered Rock DEIS analysis of the impacts is limited to a cursory statement "large-scale salvage operation occurred on burned areas on private lands." The extent and nature of this salvage operation is not clearly defined. The DEIS later refers to a salvage operation that occurred on 5,725 acres of private, industrial forestland. Whether this is the same salvage operation identified in aerial photographs and during the limited field survey is unspecified.

Response: The statement in the DEIS relates to mass wasting analysis, post-fire. Field observations made to evaluate post-fire mass wasting potential are described. The 5,725 acres identified on private land is the same area referred to in the "large-scale salvage operation..." statement in the mass wasting analysis.

Comment 130: Seven miles of new road have been built on private lands within the fire perimeter since 2002. The Timbered Rock DEIS notes, "[s]ince the design and construction standards are not known, the effects cannot be assessed." This statement does not constitute a "hard look" at the cumulative effects of road building. The potential effects of road building on private lands are not weighed by the BLM.

Response: The information about the post-fire road building (4 miles in 2002, and 3 miles in 2003) was submitted by the private landowners. The Oregon Forest Practices Act (OFPA) regulates the road building and maintenance on private lands. These rules apply to all management activities in the forest, and were developed to protect forest resources, including water quality standards. The Division 625, Forest Roads, rules specifically include, among others: Road Location, Road Design, Road Construction, Stream Protection, and Road Maintenance (Oregon Department of Forestry, 2003b). The potential effects of roads on BLM and private lands is assessed in the DEIS under Section 3.3.3.3 Mass Wasting – Roads, Cumulative Effects.

Comment 131: The DEIS does not adequately relate the actual or potential increase in mass wasting events resulting from insufficient road maintenance to past and proposed management activities.

Response: The assessment of past and projected mass wasting occurrences is presented under Sections 3.3.2.3 and 3.3.3.3 Mass Wasting – Roads, respectively. The analysis includes, cumulatively, past road building and maintenance, and also the effects of no action or future restorative actions related to roads.

Comment 65: Active management can lead to a decrease in the length of time required for seedlings to become established and begin significant root growth which will begin to replace the lost soil cohesion due to the rotting of existing roots post-fire. This added cohesion will reduce the risk of mass wasting events. Furthermore, the sooner trees and their root systems become established the sooner the evapotranspiration recovers which further reduces the risk of mass wasting due to the decrease in soil saturation.

Response: Tree roots are recognized as a component of soil shear strength, playing an important role in slope stability of hillsides with shallow soils. The slope stability analysis (Appendix H, Soils, H-20) indicates the changes in slope stability between forested and denuded uplands, with variable root strength, in the short-term (next decade). The proposed restoration activities include "reforestation" on 3,176 acres in order to "expedite conifer establishment on high and moderate burn severity areas" (see Table 2-2, Summary of the Effects of the Alternatives). In the long-term, the reforestation efforts will have beneficial stabilizing effects on the uplands.

Comment 129: A significant portion of the Elk Creek Watershed, already at an elevated risk of mass wasting due to the Timbered Rock Fire, is undergoing an apparent clear cut including fragile riparian areas. The hazardous effects of large-scale timber operations and large fires on mass wasting events, particularly within riparian areas, are noted within the DEIS and in current scientific literature. The DEIS fails to weigh these effects.

Response: Based on slope stability and GIS analyses, the DEIS identified a total of 200 to 400 acres (BLM and private), less than 0.5 percent of the Elk Creek Watershed, to be at elevated risk of imminent mass wasting (see Section 3.3.3.1, Mass Wasting – Uplands, Restoration, Cumulative Effects, Map 3-2, Appendix H Slope Stability Analysis). The DEIS proposes salvage harvest of dead trees only within the fire perimeter; no live trees are proposed for harvest. No salvage of dead trees is proposed within riparian areas except 11 acres within research units. The salvage action, or no action, will have essentially the same effects on the incidence of mass wasting along the uplands. This is primarily due to reduced evapotranspiration and root strength (see Sections 3.3.2.1 and 3.3.3.1, Mass Wasting – Uplands). The effects of salvage or no salvage actions on mass wasting are covered in Section 3.3.3.1 Mass Wasting – Uplands, Effects of Alternatives.

Comment 320: Alternative G would log trees on unstable and potentially unstable slopes.

Response: Based on slope stability and GIS analyses, the DEIS identified a total of 200 to 400 acres (92 acres on BLM land), less than 0.5 percent of the Elk Creek Watershed, to be at elevated risk of mass wasting (see Section 3.3.3.1 Mass Wasting – Uplands, Restoration, Cumulative Effects, Map 3-2, Appendix H Slope Stability Analysis). The DEIS proposes salvage harvest of dead trees within the fire perimeter; no live trees are proposed for harvest. This salvage action, or no action (no salvage), will have effectively the same effects on the incidence of mass wasting along the uplands. This is primarily due to reduced evapotranspiration (ET) and loss of root strength as a result of the fire (see Sections 3.3.2.1 and 3.3.3.1, Mass Wasting – Uplands).

Comment 344: The DEIS failed to identify areas with potential for slumping and propose corrective action.

Response: Because of microsite conditions (topography, geology, and groundwater conditions), it is impossible to predict the exact locations of “slumping” or “sloughing.” In the Section 3.3.3.3, Mass Wasting – Roads, mass wasting in form of sloughs is predicted on estimated 40 to 60 miles of roads, primarily along mid-slope roads in steep terrain (steeper than 65 percent). The proposed, specific road restoration efforts under the action alternatives (renovation, improvements, decommissioning) and road maintenance would mitigate the effects of the slumping.

Comment 132: The Timbered Rock DEIS makes unsubstantiated claims in regard to the lack of direct or indirect effects anticipated management activities would have on debris torrents.

Response: The assessment of debris torrents under Sections 3.3.2.2 and 3.3.3.2, Debris Torrents along uplands, is based on credible and reasonable analog, empirical and analytical analyses – see referenced science literature and Appendix H, Debris Torrent Analysis.

Comment 134: The DEIS does not gauge the impacts of skid trials, skid roads, helicopter landing areas or provide conclusery [sic] evidence of how the construction of .25 to 1.5 miles of road will not have immediate and profound impacts on the incidence of debris torrents.

Response: Alternative G (Preferred Alternative) proposes construction of nine segments of temporary roads, ranging in length from 250-1,300', totaling 0.9 miles. These roads are located along geologically stable ridge tops. Construction of these road spurs would consist of small cuts and fills (less than 2 feet) in a rocky terrain. The road segments would be constructed and decommissioned in the same season, during dry period of the year. Field assessment and slope stability analysis indicate that there is no potential for mass wasting from these temporary roads (see 3.3.3.1 Mass Wasting – Uplands, Effects Common to Alternatives B, C, D, E, F, and G on Mass wasting – Uplands). Since the contribution of mass wasting from the temporary to the processes within the potential debris torrent channels is non-existent, it can be reasonably concluded, that the proposed, new temporary roads would have no effect on the occurrence of debris torrents.

Comment 135: Finally, the DEIS ignores the cumulative effect salvage operations on private industrial forestland will have on the incidence of debris torrents.

Response: Analysis of debris torrents is presented in Appendix H, Debris Torrent Analysis – Mass Movement in Steep Stream Channels, and applies pre- and post-fire conditions (salvage or no salvage) in the watershed. In addition, Oregon Forest Practices Act (OFPA) regulates the forest operations on private lands; specifically Division 630-Harvesting and Division 623-Shallow, Rapidly Moving Landslides (http://www.odf.state.or.us).

Comment 60: In general the literature cited and the representations of cause-and-effects are accurate however in certain instances I believe that the explanation of cause to effect and associated value judgments may not be entirely correct

or justified. For instance: "Mass wasting, as visible and recognizable soil movement, occurs as a result of major and/or prolonged rainy events, more specifically the rise of groundwater within a soil mass, or as a result of seismic events. These natural, episodic events deliver desired coarse material (soil, sand, gravels, cobbles and boulders, and wood material) into the streams." (page 3-11) As stated in Appendix H of the DEIS, mass wasting events occur when the driving forces of the downhill weight of soil and water (and vegetation) are greater then the hill-normal weight of soil and water (and vegetation) and the cohesion of the soil mass to itself and to the underlying bedrock all adjusted for changing pore-water pressure. This can occur with or without a rise in the groundwater table depending on soil, vegetation and topographic characteristics. Furthermore, the "desirability" of this material likely depends on the channel type, the aquatic habitat of concern, and the type of material being delivered.

Response: The analytical assumptions in the Draft EIS regarding slope stability and mass wasting are based on accepted scientific principles and methods. The stability of natural slopes is governed by the soil mechanics factors of driving and resisting forces, soil shear strength and changes in pore-water pressures (changes in groundwater levels), or occasionally dynamic forces (earthquakes or blasting). Dry, unsaturated slopes that are normally stable, become increasingly unstable when the effective stresses along the existing, or potential, slip plane are reduced due to changes in pore pressures, i.e. changes in groundwater levels. These changes have overwhelming effects on the slope stability, as compared to changes in soil density due to saturation, or changes in vegetation density on the slope surface (very minor, when compared to the soil mass) (see Sowers, *Introductory Soil Mechanics and Foundations*, 1970). In the context of mass wasting in the uplands, (natural, undisturbed slopes), the word "desired" implies preferred, ordinary, regular or normal composition of soil, sand, gravel, cobbles, boulders, and wood material for the area/channel below, as contrasted to processed, uniform earth materials found in road fills, in which the proportions of these materials are "undesired."

Comment 62: The notion because there is "no action" or no more disturbance there will be less sediment moving down the hillside may not be correct. Our recent measurements cannot definitively address this question, however, similar to work of Chou (1994), our visual assessments indicate there to be very little difference in surface erosion between logged and unlogged sites.

Response: We agree. The Chou reference and Poff (2002) were added to Section 3.3.3.4, Soil Erosion, Effects of Alternative A (No Action) on Soil Erosion.

Comment 116: Furthermore, the DEIS postulates that "[t]he size of trees growing on a majority of these skid trails indicates compaction may not be a serious long-term impact from previous entries." The suggestion that the situation may just take care of itself, coupled with the indefiniteness of the language in the DEIS concerning the long-term impacts of skid trails, does not constitute a "hard look.

Response: The DEIS acknowledges the need to take restorative measures on skid trails. The PDFs includes designating of skid trails, water-barring and ripping of skid trails. These are designed to reduce compaction, erosion, and sedimentation from skid trails.

Comment 323: Sediment calculations and debris flow risk excluded private lands. Mass wasting from existing and newly constructed roads can be expected to be high during the next ten years causing severe sedimentation to salmon spawning and rearing areas. Apparently the BLM erroneously believes that since they did not construct these roads they do not have to disclose the physical impacts from them, even though some of the new roads cross federal lands.

Response: The incidence of debris flows (torrents) and their effects on BLM and private lands are assessed under Section 3.3.3.2, Debris Torrents, Cumulative Effects for No Action and action alternatives, and Appendix H, Debris Torrent Analysis – Mass Movement in Steep Stream Channels. The effects of fire on mass wasting along existing and proposed new roads on BLM and private lands are assessed under Section 3.3.3.3 Mass Wasting – Roads, Cumulative Effects, for all alternatives, including No Action and Preferred Alternative. The construction and maintenance of forest roads on private lands are regulated by the State of Oregon through the OFPA. These rules apply to all management activities in the forest, and were developed to protect forest resources, including water quality standards. The Division 625, Forest Roads, rules specifically include, among others: Road Location, Road Design, Road Construction, Stream Protection, and Road Maintenance (http: //www.odf.state.or.us).

Comment 472: Most of the salvage takes place on steep slopes on soils that erode easily. (Straight/Shippa) with high runoff potential. I would dispute map 3-4 that these soils have moderate erosion potential since most of them are on steep slopes.

Response: Map 3.4 is the latest scientific information on soils in the Timbered Rock project area. This data was updated in 2002 by the Natural Resources Conservation Service (previously the Soil Conservation Service). The referenced soils are classified as extremely gravelly loams. Gravel on the surface would decrease erosion rates by protecting the soils beneath from impacts of rainfall.

Comment 531: Although the DEIS mentions that no BLM administered land is rated as severe erosion potential, it is not clear what the sensitivity is that distinguishes between high and severe erosion potentials. Is the BLM proposing salvage logging on high or moderate erosion potential lands? The soil erosion potential map indicates that a large amount of land within the fire perimeter does have severe erosion potential.

Response: Salvage will occur on soils with a moderate erosion potential. Map 3-4: Soil Erosion Potential shows no areas of severe erosion potential within the planning area.

Comment 115: No mention is made in the DEIS of water barring that has occurred nor is any mention made of water barring skid trials in Alternative G (Preferred Alternative).

Response: Skid trails would be water-barred during the same operating season as constructed (see Section 2.3.1.3, PDF Number 4).

Comment 238: The actual amount and effects of soil erosion are not disclosed just the relative erosion among the alternatives. (2-56)

Response: Post-fire field measurements showed during the first winter as much as 1.5 to 2.0 inches of surface erosion has occurred within areas of high burn severity. This is based on the presence of soil pedestals found in areas of fine-grained soils. These structures resembling towers of soil capped by a small pebble form when raindrop impact mobilizes fine-grained sediment except where a pebble on the surface protects the underlying soil from erosion.

Comment 299: The ineffectiveness of mitigation intended to prevent soil erosion and sedimentation is not presented in an accurate, clear, complete, and unbiased manner.

Response: Medford District RMP (Appendix D. Best Management Practices P.151) states, “Best management practices (BMPs) are required by the Federal Clean Water Act (as amended by the Water Quality Act of 1987) to reduce nonpoint source pollution to the maximum extent practicable. BMPs are considered the primary mechanisms to achieve Oregon water quality standards.” The Project Design Features in this document are compilation of BMPs within the Medford District RMP and other commonly used PDFs designed to provide further protection from the potential small amounts of sedimentation which may be generated. “The BMPs in this document are a compilation of existing policies and guidelines and commonly employed practices designed to maintain or improve water quality. Objectives identified in the BMP Appendix also include maintenance or improvement of soil productivity and fish habitat since they are closely tied to water quality. Selection of appropriate BMPs will help meet Aquatic Conservation Strategy objectives during management action implementation. Practices included in this Appendix supplement the Standards and Guidelines from the SEIS ROD and they should be used together.” The BLM has not overlooked sediment concerns, and has explained why it does not expect adverse cumulative effects to occur or to retard attainment of ACS objectives.

Comments 243 and 244: Page 3-83 makes an unsupported conclusion that no action and alternative G have the same consequences in terms of sediment. This ignores the fact that salvage, yarding, road construction and road use and other actions will disturb soil, move soil, and cause sedimentation and no action will not.

Response: The DEIS acknowledges salvage activities would result in some erosion and sedimentation. The PDFs and retention of Riparian Reserves are designed to minimize this potential. Page 3-83 refers to Section 3.5.3.1, Fisheries, Environmental Consequences, and the comment has been changed from “No sediment would reach the streams...” to “Negligible amount of sediment would reach the streams...”

Comments 438 and 523: The BLM briefly states that “fire management such as construction of fireline, temporary roads, and helipads and post-fire rehabilitation can have affects on erosion (Robichaud, Beyers, and Neary 2000).” But it does not appear that the BLM attempted to quantify or analyze these impacts.

Response: The effects of erosion can be found in the direct, indirect, and cumulative effects in Section 3.3.3.4, Soil Erosion,

Effects Common to all Alternatives, Cumulative Effects. The effects of sedimentation can be found in Section 3.4.3.1, Water Quality, Sediment, Salvage, Cumulative Effects. In the effects of Alternative C in this section, the third paragraph addresses this same study.

Comment 8: I found little, if any mention of soil erosion, and the impact of the proposed actions upon the colloidal clay deposits found in and around the Elk Creek watershed.

Response: Soil clays and soil organic matter are often called soil colloids because they have particle sizes that are within, or approach colloidal dimensions (0.1 to 0.001 microns). Virtually all soils in the planning area have clay as a component. Surficial soils are those most likely to be disturbed. Of all soils in the planning area, Medco soils (124F, 125F, 126F) have the highest component of clay in the upper 7 inches (27 to 35 percent clay). Only one salvage unit was proposed on this soil, and it has been dropped. As a result of this comment, new information was added to FEIS Section 3.3.2.4, Soil Erosion, Pre-Fire.

Comment 44: Our recent measurements cannot definitively address this question, however, similar to work of Chou (1994), our visual assessments indicate there to be very little difference in surface erosion between salvaged sites and ones which were not salvaged. Again, similar to Chou (1994), it is our belief that any surface erosion resulting from salvage logging activities is likely to be overwhelmed by the sediment produced as a consequence of the fire itself. We have shown that after harvest operations on burned sites, with aggressive slash placement in skid trails, whip falling on the hillside and hay bale structures in key locations, mitigation can be accomplished.

Response: We agree with this comment. A similar discussion can be found in the FEIS in Section 3.3.3.4 (Soil). This study was also addressed in the third paragraph of Section 3.4.3.1 (Hydrology, Water Quality, Effects of Alternative C on Sediment, Salvage, Direct and Indirect Effects).

Comment 64: The impacts of hydrophobic soil conditions might be increased surface runoff and consequently increased surface erosion and increased storm flows. As also discussed in the DEIS, mechanical breakup of the hydrophobic soil during salvage logging operations can significantly reduce the areal extent of hydrophobic soils thus reducing the negative impacts on water quality and aquatic habitat.

Response: We agree with the comment. Both Poff (1987, 2002) and Beschta (1999) are referenced regarding the benefits of breaking up hydrophobic soils in Section 3.3.3.4 (Soil) of the FEIS.

Comment 133: However, the DEIS cites a study indicating timber harvesting and road building significantly increase the occurrence of debris torrents in a mountainous watershed. When claiming that management efforts would not directly or indirectly affect the incidence of debris torrents, the BLM does not support the claim that salvage operations, including tractor yarding, helicopter yarding, and cable yarding, will not increase the rate of debris torrents with scientific data. Furthermore, the BLM admits that salvage activities will result in "severe [soil] disturbance."

Response: Large-scale fires have essentially the same effects on the incidence of debris torrents as large-scale harvesting, primarily due to the loss of tree canopy (increased peak flows) and reduced root strength (increased incidence of mass wasting within the channels). "Torrents are initiated by …large increases of in-stream flows after a major rain event, a large-scale fire … or a large scale clearcutting …" (see Section 3.3.3.2, Soil, Debris Torrents). The increased incidence of debris torrents as a result of the Burnt Peak Fire in 1987, when most of the debris torrents occurred, comprised 29 percent of all mass wasting incidents in the watershed (see Section 3.3.2.2, Soil, Debris Torrents). "The direct and indirect effects of fire-killed tree removal (i.e. salvage) … are quantitatively indistinguishable from the direct and indirect effects of the No Action Alternative (i.e. no salvage). The incidence of debris torrents would be independent of the level of salvage harvest on BLM-administered or privately held lands" (see Section 3.3.3.2, Soil, Debris Torrents). The salvage operations would not occur within the potential debris torrent channels, therefore, no effects of these operations can be reasonably expected.

Comment 188: Soil has already began to stabilize and collect behind down woody debris. Salvage will dislodge these soil accumulations and move them toward streams.

Response: All pre-fire existing down woody debris would remain. Wind-toppled and other fallen trees are not effective in reducing erosion from hillslopes. Even when properly placed on contour, research has shown that at the watershed scale, log-erosion barriers may reduce sediment yield; however, irrespective of treatment, most sediment comes from channel erosion rather than hillslopes (Gartner, 2002).

Comment 42: Is the distribution of evenly distributed organic material coming from small trees a more viable solution than a couple of snags falling down each year and only covering up a very small portion of the site? Which one of these achieves the objective of "returning to desired conditions sooner"? If the soil scientists and biologists can not answer many of these questions, the prescriptions should be re-described.

Response: Discussion in Section 3.3.3.6 illustrates how salvage logging would add an immediate input of tops, limbs, and sawdust to the soil surface. This organic matter would lower sedimentation rates. Additionally, it would be a source of organic material available to soil organisms.

Comment 152: The DEIS also notes that salvage operations on industrial forestland would have long-term, negative effects on the land but could be counterbalanced through the application of fertilizers. This statement also stands in direct opposition to available, alternative science unconsidered by the DEIS on this matter. The Beschta Report states, as a general rule, post-fire application of fertilizers should be avoided due to prohibitive costs and unanticipated consequences.

Response: All references to fertilizer used on private lands have been dropped from the FEIS. However, it is common practice on industrial forests and it will likely be used on those lands in the future. BLM does not propose the use of fertilizers in this project area.

Comment 187: EIS page 3-38 fails to recognize that ripping of skid trails will damage symbiotic soil fungi and the roots of residual trees that are so important in this post-fire landscape.

Response: Based on this comment, the following has been added to Section 3.3.3.5. "Given time, these species would migrate into these sites from less severely burned areas, and from mycorrhizae inoculated trees planted under the ESRP." In addition, PDF number 5 in Section 2.3.1.3 has been modified to read, "Ripping of skid trails would occur in all tractor yarded salvage units during the same operational season they were constructed. No ripping would occur within 100' of any existing green tree greater than 7" DBH."

Comment 199: The EIS (3-229) makes a false statement that the proposed salvage will "protect long-term productivity." Proposed activities, especially commercial log removal, will violate requirements to maintain long-term soil productivity. Soil compaction and erosion, loss of coarse woody debris, and erosion all adversely affect long-term productivity.

Response: Section 3.19.2, Relationship between Short-Term Uses and Long-Term Productivity, describes the balance between short-term uses and long-term productivity. This section provides the decision maker and members of the public a clear sense of what would be gained or lost in the short-term and long-term. As stated in the DEIS, "Short-term use of the land included day-to-day and even year-to-year activities that affect the landscape." "Maintaining the productivity of the land is a complex, long-term objective. All action alternatives protect the long-term productivity of the project area through the use of specific standard and guidelines, mitigation measures and BMPs."

Comment 200: Two hundred and twenty acres of soil compaction in an LSR violates the Northwest Forest Plan requirement to maintain long-term site productivity. (2-56)

Response: This table was in error in the DEIS and has been corrected in the FEIS.

Comment 201: The EIS admits that the logging will adversely affect long-term soil productivity (p xix). This will have a direct negative effect on LSR development.

Response: The DEIS (page 3-44) states this would be a "...slight long-term negative impact to soil productivity that would begin to diminish as vegetation is reestablished." It is not anticipated this would have any effect on LSR development.

Comment 240: Page 3-24 the EIS fails to recognize the long-term contribution of large CWD to site productivity and soil productivity.

Response: The role of CWD was presented in Sections 3.3.2.7 (Soil), 3.6.3 (Vegetation), 3.8.3.1 (Special Status Plants), and 3.8.3.2. Additionally, Table 3.3-12 presents the estimated Organic Matter Distribution after implementation of alternatives.

Comment 423: Page 3-38 of the DEIS claims (without analysis or citation) that "tractor yarding would not compact any soils as all tractor lines would be ripped." No compaction at all from tractor yarding? Please provide support for these surprising assertions that would seem to contradict the "maximum estimate" presented on 3-10.

Response: This statement was deleted from the FEIS as it was correctly stated in a previous paragraph on the same page in Section 3.3.3.5. Compaction would be mitigated as most tractor lines would be ripped.

Comments 289 and 288: BLM assumes that temporary and semi-permanent new roads will have no effect because they are temporary. BLM has shown no scientific evidence for this assumption. In fact, scientific research has shown exactly the opposite. "Effectiveness of road ripping in restoring, infiltration capacity of forest roads." Charles H. Luce, USDA Forest Service Intermountain Research Station, 1221 S. Main, Moscow, ID 83843. September 1996. *Restoration Ecology*, Vol. 5, No. 3. page 268.

Response: From the conclusion of the above reference paper, "These findings suggest that ripping can be a reasonably effective step in the restoration process." The fact that they are temporary is just one reason these roads will not have effects on water quality. Their locations on ridgetops away from streams and outside of Riparian Reserves are other reasons that water quality will be maintained. This has been added to Section 3.3.3.5

5.4.3.6 Hydrology

Comment 427: Clearcutting, road building and landing construction within the Transient Snow Zone (TSZ) have especially pronounced impacts on peak flows.

Response: Salvage logging would not affect canopy closure; the canopy has been burned by the fire and is no longer intact. Therefore, salvage logging would have no affect on rain-on-snow events. No permanent road building is proposed in the EIS. The amount of temporary road building and landing construction in the TSZ is very small and would not have a pronounced impact on peak flows at the watershed or subwatershed scales.

Comment 507: Sections 32S1W Sec 1, 11, 13, 23, 24, 27, 25 and 1E Sec 3, 7, 19 are in the TSZ (Transient Snow Zone). Management in these sections could exacerbate burn effects and contribute to the consequences of Rain on Snow events should they occur.

Response: This was not addressed in detail in the DEIS because there would not be a further reduction in canopy in the TSZ from salvage. An additional discussion was added to Section 3.4.3.2, Hydrology, Water Quantity, Streamflow, Effects of Alternative G.

Comment 58: There is ample opportunity to cite the work of the Oregon Department of Environmental Quality released the Sufficiency Analysis: A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality (ODEQ 2003) which concludes in large part that current Forest Practices Rules in Oregon are sufficient to meet the State's water quality standards.

Response: The Oregon Forest Practices Act (OFPA) is applicable to private industrial timberlands but not to Federal lands managed under the Northwest Forest Plan (NFP). Guidelines under the NFP tend to be more stringent than those under the OFPA and would be even more sufficient to meet the State's water quality standards. A citation of the Sufficiency Analysis was added to the EIS in the seventh paragraph of Section 3.4.3.1, Effects of Alternative A on Sediment, Cumulative Effects and the last paragraph of Section 3.4.3.1, Effects of Alternative A on Temperature, Cumulative Effects.

Comment 59: The Sufficiency Analysis does suggest changes to the current Forest Practices Rules may be necessary with regards to wet-weather hauling, riparian management requirements on certain stream types to meet certain water quality goals. Given this current research (2003 versus 1985) it is important to acknowledge that changes in forest management and forest practices rules have occurred and that many of the impacts discussed in previous research may not apply to current forest management impacts.

Response: This was addressed in Section 3.4.3.1, Water Quality, Effects of Alternative A on Temperature, Cumulative Effects, last paragraph. This section states, "Streamside buffers were established by the Oregon Forestry Practices Act (OFPA) for industrial forest lands and the Northwest Forest Plan (NFP) for Federal lands. These buffers have limited or eliminated harvest in the riparian zone and aid in the maintenance of stream shade and, therefore, maintain lower stream temperature."

Comment 353: The DEIS identifies three streams within the fire perimeter that are 303(d) listed for temperature impairment, but may have overlooked a fourth stream, Flat Creek.

Response: The Flat Creek referred to that is on the 303(d) list is in the Upper Rogue 5th field, not the Elk Creek 5th field, although both Flat Creeks lie within the Upper Rogue 4th field. This was stated in a response to the EPA internal comments. The Flat Creek on the 303(d) list has LLID of 1224617429114 (Lat 42.9114 Long -122.4617) and the Flat Creek in Elk Creek has an approximate LLID of 1127041427563 (Lat 42.7563 Long -112.7041). These are two different streams.

Comments 428 and 429: It is not reasonable to assume that undisturbed Riparian Reserves would buffer streams from soil erosion and sediment delivery. The BLM has not fully analyzed the existing condition of reserves and private land hydrologic conditions and their location is never disclosed to the public in the EA. Most reserves and stream courses on private land are degraded from past disturbances.

Response: The BLM disagrees. It is reasonable to assume that undisturbed Riparian Reserves would buffer streams from soil erosion and sediment delivery (see pages 22 and 26 in the Medford District RMP, Riparian Reserve objectives and Aquatic Conservation Strategy objectives). "The Aquatic Conservation Strategy is designed to meet the following objectives: Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport." The Riparian Reserves within the fire have been disturbed and Section 3.4.2.1, Hydrology, Affected Environment addresses these conditions. Figure 3.4-3 shows the burn severity of Riparian Reserves. Riparian Reserves are discussed under sediment and temperature directly and any discussion on stream channels is part of the Riparian Reserve. The functioning condition of streams was added to the FEIS in Section 3.4.2.1, Affected Environment, Post-Fire, Channel Morphology. A map showing the Riparian Reserves, proposed riparian restoration projects, and the three research salvage units that contain 11 acres of Riparian Reserves was also added to the Final FEIS (see Map 3-6). Private land hydrologic conditions were discussed throughout the Hydrology Affected Environment and Environmental Consequences discussions in the EIS.

Comments 16, 312, 420, 421, and 466: The Medford RMP concluded that much of this watershed have been so heavily impacted during the 1990s that logging in the area should be deferred to allow recovery from the cumulative impacts of such past activities. The Timbered Rock/Elk Creek DEIS does not adequately address either of these issues in the cumulative effects analysis that is offered. Proposed green tree and salvage logging within these deferred watersheds will add even further to the high cumulative impacts.

Response: Section 1.2.1 states, "This deferral was based on equivalent clearcut acres, compacted acres, openings in the transient snow zone, and road density." One of the objectives of the deferral was to delay silvicultural treatments on BLM-administered lands until vegetation had recovered to reduce cumulative effects to acceptable levels. However, the Timbered Rock Fire reset the vegetative state on most of the acreage within these drainages back to zero. Removing dead trees would not increase the cumulative effects with respect to streamflow because these dead trees are no longer using water through transpiration. The trees in high and moderate burn severities have also lost their canopy from the fire. This is especially critical inside the TSZ where large openings can increase the magnitude of ROS events. Removing trees that no longer have canopy would not increase the amount of openings in the canopy. Furthermore, the deferral (USDI 1995, 42) does provide "Activities of a limited nature (e.g., riparian, fish or wildlife enhancements, salvage, etc.) could be permitted..." Finally, the deferrals for watershed monitoring remain in place as they were outside the fire perimeter. DEIS page 3-72, Effects of Alternative G, Cumulative Effects states, "Additional changes in streamflow as a result of this alternative would not be measurable, especially when compared to the potential increase in streamflow as a result of the fire." No green tree harvesting is proposed in the deferred watersheds.

Comment 209: The DEIS analysis inappropriately relies on the filtering effect of riparian buffers (3-34, 3-75, 3-83) that are up to 80% burned (3-50, 3-119) and will very likely NOT filter sediment to the degree found in studies involving unburned riparian buffers (3-58). To be effective, riparian buffers need healthy vegetation, coarse woody debris, and adequate cover of litter and duff, all of which have been significantly reduced by the fire.

Response: Timbered Rock hydrologist and soil scientist visited the Quartz Fire, which has now had two winters to heal. Riparian vegetation (grass, forbs, brush, and hardwoods) is being reestablished and is functioning. Similar riparian vegetation growth is occurring in the Timbered Rock project area. If salvaging occurs on Timbered Rock, it will occur with partially re-vegetated riparian buffers. This new information was added to Section 3.3.3.4.

Comment 210: Channel morphology and LARGE WOODY DEBRIS recruitment will be adversely affected by 14 acres of logging in Riparian Reserves (3-66, 3-69),

Response: It is now 11 acres and is addressed in Section 3.4.3.1, Hydrology, Water Quality, Effects of Alternative G on Channel Morphology and Effects of Alternative G on LWD, Cumulative Effects, "Channel morphology would not change as a result of the salvage portion of the alternative due to the presence of Riparian Reserves. Channel morphology would be improved by adding rock weirs and logs to streams and providing structure to areas currently lacking structure." These sections were updated to include a discussion based on information obtained from stream surveys completed in 2003. These surveys concluded that stream channels in the reserves to be entered had sufficient structure to dissipate stream energy and therefore would not have negative effects on channel morphology.

Comment 273: Salvage logging will adversely affect the ability of the land to absorb, store and release high quality water and the NEPA analysis fails to address these concerns.

Response: The trees that would be salvaged would not affect the amount of water available for runoff because the trees are dead and are no longer transpiring.

Comment 274: The agency's snag retention guidelines are based on wildlife needs, but fail to consider or analyze the need to large snags and large down logs for soil, water storage, nutrient storage, or other purposes.

Response: Riparian Reserves are the method for maintaining large snags and large down logs for soil, water storage, nutrient storage, or other purposes. Riparian Reserves are one of the components of the ACS, which is designed to meet many objectives, including "Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration, and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability."

Comment 354: The subsequent impacts on water temperature from salvage and/or research on federal and non-federal lands in these drainages should be fully discussed in the Final Environmental Impact Statement (FEIS).

Response: The impacts on water temperature from salvage and/or research were discussed in Section 3.4.3.1, Hydrology, Water Quality, Temperature.

Comment 359: This study {*Oregon Department of Forestry and Department of Environmental Quality Sufficiency Analysis: A Statewide Evaluation of FPA Effectiveness in Protecting Water Quality*} concludes that even with Oregon Forest Practices and Best Management Practices (BMPs), there are temperature water quality impacts due to forest management activities.

Response: The fire has reduced the canopy on stream channels and will increase the amount of solar radiation reaching the stream. This will likely increase the stream temperatures in the watershed as stated in the EIS in Section 3.4.2.1, Water Quality, Affected Environment and Section 3.4.3.1 Water Quality, Environmental Effects. A discussion has been added to the EIS in the last paragraph under Section 3.4.3.1, Water Quality, Effects of Alternative A on Temperature, Cumulative Effects to better address the cumulative effects on stream temperature from salvage logging on private lands.

Comment 436: The BLM does know that it is proposing 955 acres of roadside highgrade salvage with ground based yarding systems that "would create a mechanism for sediment delivery by directly connecting the disturbed area to roadside ditches, many of which are hydrologically connected." (DEIS 3-58) Does the BLM believe that this yarding will maintain or achieve the objectives of the ACS? How much of this yarding is proposed in "deferred watersheds" within the LSR?

Response: This was discussed in the sixth paragraph of Section 3.4.3.1, Water Quality, "The effects related to roadside … Because of these conditions and PDFs to water bar corridors after use, these acres would not deliver sediment to streams." Appendix D of the Medford District RMP states, "Best management practices (BMPs) are required by the Federal Clean Water Act (as amended by the Water Quality Act of 1987) to reduce nonpoint source pollution to the maximum extent practicable. BMPs are considered the primary mechanisms to achieve Oregon water quality standards." "The BMPs in this document are a compilation of existing policies and guidelines and commonly employed practices designed to maintain or improve water quality. Objectives identified in the BMP Appendix also include maintenance or improvement of soil productivity and fish habitat since they are closely tied to water quality. Selection of appropriate BMPs will help meet Aquatic Conservation Strategy objectives during management action implementation. Practices included in this Appendix supplement the Standards and Guidelines from the SEIS ROD and they should be used together" (USDI 1995, 151).

Comment 437: The proposed area salvage logging, science research salvage logging and roadside salvage logging will contribute to the ongoing "chronic lack of large woody debris (LWD)" that is noted on page 3-49.

Response: The proposed area salvage logging and roadside salvage logging would not contribute to the ongoing "chronic lack of large woody debris (LWD)" that is noted in the EIS because these projects would implement full Riparian Reserves. The science research salvage logging would also implement Riparian Reserves on all but approximately 11 acres on intermittent streams where LWD recruitment levels would be affected locally, but not at a drainage, subwatershed, or watershed level.

Comment 442: The DEIS itself states that there is a high risk of cumulative impacts to the watershed, even without the large scale proposed project. Therefore the Project should be withdrawn until data is available that shows this project will not further degrade the water quality in the planning area (40 CFR 1500.1(b); 36 CFR 219.14(2)).

Response: Water quality is expected to improve in the long-term. Section 3.4.3.1, Water Quality states, "Since roads are the greatest concern related to sediment delivery in forested watersheds, the reduction of sediment would be a positive long-term cumulative effect to improve water quality in the watershed."

Comment 522: The DEIS does not make adequate mention of the Clean Water Act or the TMDL program, although Elk Creek is listed as impaired for temperature and dissolved oxygen on Oregon's 303(d) list.

Response: This is discussed in the Hydrology Section 3.4.2.1, Water Quality, Temperature. A Water Quality Restoration Plan (WQRP) was developed for the Elk Creek Watershed and is included in Appendix I, Hydrology.

Comments 137, 138, and 209: Yet the BLM fails to provide any concrete analysis of whether the proposed project will cause the streams to reach critical thresholds of sedimentation endangering water quality and temperature and the DEIS analysis inappropriately relies on the filtering effect of riparian buffers.

Response: The Elk Creek Watershed Analysis states, "While extensive logging, ranching, and other land uses have affected stream temperatures, they have not had much effect on turbidity in the streams" (USDA and USDI 1996, II-19). The greatest input of sediment will come from the fire itself with the largest amount occurring the first winter. The winter of 2003/2004 will be the second wet season the watershed is facing after the fire. Much of the area is recovering naturally and with erosion control projects completed under the ESRP. This has reduced the amount of erosion and subsequent sedimentation. Salvage logging would occur after two winters and much of the erosion has been reduced. Vegetation is recovering in Riparian Reserves and will act as filters, if any sediment moves off-site as a result of salvage. The amount of sediment delivered would be overwhelmed by that of the fire.

It is expected that a long-term reduction in sediment will come from the restoration projects. The Timbered Rock hydrologist and soil scientist visited the Quartz Fire which has now had two winters to heal. Riparian vegetation (grass, forbs, brush, and hardwoods) has been reestablished and is in a recovering condition. Similar riparian vegetation growth is occurring on the Timbered Rock project area. If salvaging occurs on Timbered Rock, it will occur with vegetated riparian buffers. This information was added to Section 3.3.3.4.

Comment 9: You need to address soil stability, soil types, and areas where disturbance will affect the water quality of stored and free flowing water, and its impact on the Rogue River fishery.

Response: There is not a reservoir for stored water in the Elk Creek Watershed and, therefore, there would not be any effect to water quality of stored water. Soil erosion from the fire will overwhelm any erosion created from salvage. Elk Creek has begun to recover and much of the erosion took place last year, with less expected this winter. This decrease in erosion will continue as vegetation recovers and stabilizes soil, until reaching pre-fire erosion levels. Much of the sediment created from erosion has washed out of Elk Creek due to the large amount of bedrock in stream channels causing high shear stresses and forcing sediment out of the watershed. The analysis area for fisheries is the Elk Creek Watershed. The effect on Rogue River fisheries is anticipated to be negligible.

Comment 527: Indirect effects of the Timbered Rock fire, not mentioned in the DEIS, will continue to exacerbate temperature and dissolved oxygen impairments within Elk Creek. Accelerated erosion rates can be expected from bare, exposed ground in areas burned by the fire. Increased erosion and sediment delivery to Elk Creek could lead to channel aggradation and channel widening within certain reaches of the stream.

Response: The majority of sediment reaching the channels consists of particles less than 2 mm in size, much of it in the clay-sized fraction that will stay in suspension (Boise 1999, E-3). While extensive logging, ranching, and other land uses have affected stream temperatures, they have not had much effect on turbidity in the streams (USDA and USDI 1996, II-19). It is unlikely that material of sand and clay size would lead to aggrading streambeds as this material would be flushed from the system during floods and other high flow events. These effects were mentioned in the DEIS under Section 3.4.2.1, Water Quality.

Comment 145: Throughout the DEIS the BLM makes significant scientific determinations without providing any reference or scientific basis upon which these determinations are being made. On DEIS 3-62 the BLM concludes that long-term intermittent streams would have some flow during part of the summer, but would not contribute enough to have affects on larger streams or contribute to additional increases in temperature. The BLM does not explain how it reached this conclusion, nor the science on which it based this conclusion on.

Response: Intermittent streams are not subject to heating from the sun during the hottest part of the year, because, by definition, intermittent streams are only flowing during part of the year. Not enough water was present in the beginning of the summer to monitor temperature. Because the streams are not flowing during the hot summer months, they would not have any affect on downstream water temperature, even with decreased evapotranspiration.

Comments 425 and 426: Page 3-28 of the DEIS indicates that "[r]oad building in steep mountainous terrain has been long recognized as the single greatest cause of soil mass movement. (Swanston 1970). The increased rates of failure were assessed at 25 to 400 times the rate of failure for undisturbed terrain (Siddle, et al. 1985)." Yet neither of these reports is actually listed in the bibliography of the DEIS. We assume that the reports may indicate that the proposed new "temporary" road construction activities (proposed on burned soils) will have similar impacts. Even if the impacts are less than expected, the Aquatic Conservation Strategy objectives of the NFP will clearly be inhibited by the proposed road construction and yarding activities.

Response: These references, along with other relating to mass wasting, were inadvertently omitted from the DEIS, but have been included in the FEIS. These roads are located along geologically-stable ridge tops, with distances to the nearest intermittent streams ranging between 300 and 900' (see Map 2-6 f). No erosion or mass wasting from these spur roads is anticipated. The Environmental Consequences have been revised to specifically address the objectives in the Aquatic Conservation Strategy. Sediment resulting from the proposed actions is addressed in Section 3.4.3.1.

Comment 523: The document failed to discuss the quantitative or qualitative effects of the various alternative proposals on erosion rates and sediment yields to the watershed's streams and creeks.

Response: This is discussed in Section 3.4.3.1, Water Quality, Sediment, Cumulative Effects on Water Quality. The effects of the fire would increase the sediment yield the greatest in the short-term (1-3 years), by increasing runoff and erosion.

Comment 506: A contradiction exists with regard to peak flows in research done by Boise (1999). It would seem that dense stands can decrease the difference between peak and low flows because of the water holding capacity of a wooded landscape.

Response: The statement "Bitter Lick Creek sub-basin has the highest potential for increases in peak flows since the area has not been harvested and fire suppression has increased stand densities" appears to be where the confusion is coming from. The statement that preceded this was "The subwatersheds peak flows determined to be the most responsive to changes in canopy cover are mostly located outside the Timbered Rock Fire perimeter." This was used to explain that although changes from historic to current conditions are small, there are some differences between subwatersheds, with Bitter Lick having the greatest potential for change if canopy was removed during a catastrophic event or from management activities. This statement was not inferring that subwatersheds with dense stands have higher peak flows, but rather these subwatersheds are at a greater risk for changes in peak flows if canopy is removed.

Comment 503: Reconsider the volume of planned riparian thinning. Leave as much standing vegetation as possible. Shade effects water temperature

Response: A 30-foot no-cut buffer would be left to protect stream shade. Trees felled would be left on-site unless fuel loading was too high, then trees would be girdled to remain as snags for future coarse wood recruitment. This project is intended to meet ACS objectives by restoring large conifers within Riparian Reserves.

Comment 532: The BLM should take advantage and make use of available sediment transport mathematical models to aid in the management and selection of lands for salvage logging. These models could be used to quantify and compare erosion rates and potential for sediment delivery to streams for the various alternatives.

Response: The WEPP X-drain model was used to estimate sediment delivery from roads to streams and the percent reduction by reducing cross-drain spacing and included as part of the Administrative Record. The Disturbed WEPP model was used to assess impacts from fire on erosion and sedimentation and the effectiveness of stream buffers. We are not aware of any models available that would accurately and efficiently measure sediment transport at a watershed scale.

5.4.3.7 Fisheries

Comment 332: Citations from published literature in the DEIS appear to have been selectively used to support the beneficial effects of stream enhancement projects, fire, logging, and roads to fish, thus biasing the impact assessment by failing to adequately disclose negative impacts.

Response: An extensive discussion, with literature citations, about adverse and beneficial effects is in Section 3.5, Fisheries.

Comment 338: The DEIS (p. 3-86) falsely states that the no action alternative "[t]here is no long-term benefit for trout or federally-listed threatened coho salmon because of the lost opportunity for road work…" Removal (decommissioning) of high risk roads is a proven technique for reducing sediment impacts to fish and is practiced widely by BLM and others.

Response: The discussion on page 3-86 of the DEIS referenced in the comment describes the lost opportunity projects such as road improvements, habitat enhancement, culvert improvement, or riparian thinning, which benefit fish. Improving road conditions, and reducing erosion and decommissioning of roads, is part of this project, yet would not occur in Alternative A. Magnitude, time period, and sediment type involved with an expected sediment delivery is explained in Section 3.4, Hydrology, and Section 3.3, Soil. These factors are considered in Section 3.5, Fisheries.

Comments 57 and 56: It is important to recognize past impacts due to poor management practices, however, it is equally important to indicate that changes in current forest management practices have largely minimized these same impacts, such that it is possible to both harvest timber and supply high quality fish habitat and water quality.

Response: The EIS is assessing impacts of past forest management practices because many of the activities addressed occurred at the time these past standards were in place. Timber harvesting in the watershed on BLM lands has been minimal in the past decade. Past harvesting on BLM occurred prior to implementation of the Northwest Forest Plan and many of the practices implemented would not be implemented under the current plan. As noted in Section 3.3.2.3, most of the road building impacts are based on roads built between 1970 and 1990 with lower engineering standards compared to current standards. Over the years, management practices on private land harvesting has changed due to changes in the Oregon Forest Practices Act. The EIS presumes private land activities comply with the standards established in the OFPA at the time of the activity. Cumulative effects analysis assesses the impacts of past, present, and reasonably foreseeable future actions (see Table 2-3 for a summary of cumulative effects analysis).

Comment 147: On DEIS 3-88 the BLM states "Populations [fish] typically rebound in the short term from chronic and episodic disturbances. These are just a few examples of the lack of scientific support and analysis throughout the EIS. The BLM does not explain how it reached this conclusion and provides no scientific basis for this determination.

Response: Effects Common to all Alternatives, Section 3.5.3.1, did provide for scientific support. "Fish populations start to recover within the first year of a fire disturbance" (Dunham, et al. in press, 8-20).

Comment 148: These omissions are too numerous to cite, and can be found in every section of the DEIS. As it stands, because of lack of scientific support and analysis the DEIS is fatally flawed, and is not likely to withstand either scientific or judicial scrutiny.

Response: The scientific support and analysis used are referenced throughout the document. The bibliography provides a list of these references. The FEIS has been updated with additional references used.

Comment 208: The EIS says that fish populations are adaptive and resilient (3-78) but fails to consider that the existing highly degraded condition of aquatic habitat due to fire, roads, and past logging does not allow fish to fully realize its

adaptive capabilities. The Elk Creek Watershed Analysis page IV-2 indicates that human activities have reduced the amount of high quality habitat and reduced fish survival rates.

Response: Fish populations are adaptive and resilient notwithstanding poor habitat conditions, especially for salmonids. The DEIS Section 3.5.2 describes the pre-fire conditions, past land management in the watershed, and the persistence and resilience of the fish populations to reproduce. The DEIS recognizes the good connectivity which allows for fish populations to emigrate and immigrate the fire area which demonstrates salmonids adaptive capabilities. Fish populations have maintained a viable population regardless of habitat degradation prior to 1990. See Appendix J, Table J-1 for population trends in Elk Creek since 1992.

Comment 212: The EIS uses an inappropriate baseline to describe the effects on fish populations. The EIS describes the effects on fish within the context of the "historic range of variability" rather than with reference to the no action alternative (3-85). The relevant question is not whether fish will be "maintained" within the HRV, but whether fish are likely to be adversely affected by salvage compared to the no action alternative. The EIS must reanalyze effects to fish.

Response: The effects of the alternatives compared to the No Action Alternative, is displayed in Table 2.2. Figure 3.5-2 displays effects of the fire as well as the alternatives on fish populations within the range of natural variability. The description of adverse effects to fish and populations are explained in Section 3.5.3.

Comment 328: The DEIS (3-93) fails to disclose the magnitude of decreases that would result in a "remnant level." Once reduced to a "remnant level" some stream populations could be extirpated for decades.

Response: The level of a population between near optimum and near remnant varies at any point in time. The magnitude of impacts would also vary within these limits. The levels of impact according to different levels of road and harvest activities are discussed in Section 3.5.3, Environmental Consequences. Extirpation within this watershed is not anticipated. Not all stream segments in all streams are at or near a remnant level. Some stream segments are moderate to high in fish production. This is explained in Section 3.5.3, Fish Populations, and impacts vary within the range of natural variability. Fish have the capability to move throughout most of the watershed and reproduce.

Comment 335: The DEIS (p. 3-83) falsely states and without site specific supporting data that "[t]rout and salmon survival and production would remain unchanged and within the range of natural variability in the watershed" because of riparian buffers on public lands.

Response: Page 3-83 of the DEIS provides scientific research supporting "Trout and Salmon survival and production would remain unchanged and within the range of natural variability in the watershed" (Hartman and Scrivener 1990, 1; Hall and Lantz 1969, 355).

Comment 341: Figure 3.5-2 (p. 3-85) and Table 2-2 (p. 59) are not useful for decision-making because they do not sharply show possible differences in sediment impacts to fish. Instead the DEIS falsely assumes that sediment impacts would be the same for all alternatives.

Response: Page 2-59 of the DEIS is a summary of the effects compared to all alternatives. Figure 3.5-2 displays effects of the fire as well as the alternatives on fish populations within the range of natural variability. This table and figure are useful for the decisionmaker.

Comments 324, 325, 326, 331, 333, and 342: The DEIS fails to adequately disclose that debris torrents (primarily from roads) will kill fish and damage fish habitat. Due to intensive salvage logging and high road densities on private lands, debris torrents would have longer runouts and lack large wood, both of these factors would intensify adverse impacts. Sediment (primarily from mass wasting of road) is likely to adversely affect coho salmon through decreased egg-to-fry survival, reduced rearing area, increased stream temperatures, decreased food, and adult migration barriers. In determining impacts to fish the DEIS failed to consider the magnitude of expected sediment increases, season and time period of delivery, and type of sediment delivery. Failure to adequately disclose fish impacts from debris flows (torrents) is a violation of NEPA. A federal court enjoined virtually all timber sales in the Siuslaw Forest's Mapleton District (National Wildlife Federation v. US Forest Service, 592F. Supp. 931 (D. Or. 1984))

Response: Episodic erosion includes debris torrents and landslides. These discussions are in Section 3.5.2.2 and 3.5.3 which reference the similar effects found in chronic erosion conditions. We concur; debris torrents and landslides can kill fish

eggs and developing alevins and this was added to the text. Debris torrents and landslides do not always block fish passage. Debris torrents and landslides have adverse and beneficial effects to fish. The major variable is the timing. Adverse effects can directly kill fish eggs, yet within a year the effects from a debris torrent or landslide could have produced more complex habitat and a beneficial effect. Effects of sediment are discussed throughout the Section 3.5, Fisheries, and especially in the Environmental Consequences Section 3.5.3. There is also a likelihood of the effect remaining in the range of natural variability. Fish populations can be reduced yet not have a substantial or significant reduction in abundance from sediment or flow levels which may occur higher than naturally.

Some segments of streams in the Timbered Rock project area produce good numbers of juvenile coho. Yet, most of the streams are low to moderate producers of coho salmon. The basic premise for fish population survival and production relies in the fact there is connectivity between drainages, which is the case in the Elk Creek Watershed. Forest practices in the Elk Creek Watershed have been conservative for two decades and produced a viable population of salmon and trout.

Comments 334 and 336: The DEIS (p. 3-84) admits that high levels of sediment from natural surface roads or stream banks erosion can potentially limit insect production and suffocate fish" but then falsely states that "[d]irect mortality to eggs from sediment is highly uncertain'"

Response: This statement in the DEIS is a mistake and will be taken out. Large enough quantities of sediment to cause significant effects to the populations are not anticipated. Fine sediment in large enough quantities could have an effect on fish abundance. Fish populations can be reduced in some areas from catastrophic or non-catastrophic sediment effects, but still be abundant enough in areas to reproduce and contribute to the population. Forest practices have improved in the past two decades on Federal lands. What we do know is fish populations have persisted during the past decades in this watershed with varying, higher than natural flow and sediment levels, at different time periods. Populations have persisted in the range of natural variability and outside this range, over the long-term (Dunham, et al. in press; Everest 1987).

Comment 339 and 327: The DEIS (p. 3-93 and elsewhere) falsely states that "[fish] populations typically rebound in the short-term from chronic and episodic [erosion] disturbances" and falsely claim without supporting data that "forest practices are a small cause of fish mortality compared to irrigation withdrawals (p. 3-84). Brown et al. 1994 found that numerous coho populations in northern California had been extirpated. Logging was identified as a leading cause. Frissell (1993:342) identified watershed and regional extirpations of native fishes in the Pacific Northwest and California: "The simultaneous decline of numerous taxa in basins not afflicted with dams or diversions suggest that cumulative damage to aquatic habitat caused by logging, grazing, urbanization and other land uses play a major role in icthyofaunal declines..."

Response: The referenced literature (Brown et al. 1994; Frissell 1993) is a more global or regional purview of the decline of coho salmon in the Pacific Northwest and California. This generalized article is misused and misleads when applied to a site specific situation such as the Timbered Rock DEIS. The referenced articles discuss the long term effects to fish populations based on widespread management practices used prior to 1990, which is not the case today. The referenced articles are not specific to the Rogue River but to California streams. The mention of coho extirpated in Northern California is invalid since they are not extirpated in Southern Oregon. The Aquatic Conservation Strategy, road improvements and restoration actions help prevent impacts to fish. The discussion of population rebounds is throughout the Fisheries Section of the DEIS. Accompanying references are included in comment 147.

Comment 340: The DEIS (p. 3-93) falsely states that "[t]rout and salmon population trends would greatly increase in Alternative G" from restoration work in Riparian Reserves. Cutting down green trees from Riparian Reserves and pulling them into streams (p. 3-93) is not likely to increase fish populations because this woody material would be unstable and not likely to persist because of small size. A large pulse of green vegetation placed into low flow channels could be harmful by increasing oxygen demand for temperature stressed fish.

Response: Page 2-8 of the DEIS provides a description of fish habitat improvement projects. Two separate projects place wood in the streams. "Large wood (20-24" DBH) would be place almost parallel to the streambank for adult holding cover. Log placement would vary from 15 logs per miles to 25 logs per mile." These are not green trees, but fire-killed trees. In addition to the logs placed in the stream, in areas where Riparian Reserves were identified for thinning, some of the smaller diameter trees that would be cut would also be added to the stream. It is very beneficial to add smaller wood combined with larger wood to provide complex habitat (see Appendix E). The large wood provides the stability needed when small wood is added naturally. This practice would encourage spawning gravels to accumulate and pools to form for fish rearing. Oxygen demand from placing wood in streams is not a major concern in a free-flowing stream.

Comments 329 and 330: The DEIS failed to disclose that increased rates of debris torrents may cause fish passage blockages that would be long-term and failed to disclose that debris torrents can topple riparian vegetation and scour streams to bedrock both of which will increase stream temperatures..

Response: Debris torrents occur in steep gradients generally over 35 percent slopes. Water in streams with steep gradients has a very short retention time and therefore the time of concentration is short. This means that exposure to solar radiation is short and would not cause an increase in stream temperature. Streams in gradients this steep are mostly intermittent and are not flowing during peak summer heating. After a debris flow, much of the canopy of the stream remains and it is not common for a large swath of vegetation to be entirely removed but rather a narrow strip down the channel. The debris flow that was identified after the fire retained some canopy, especially large trees. The channel was extremely steep and although many springs had emerged along the channel, the retention time for water was short and would not result in downstream heating. The low amount of flow would not be expected to affect downstream perennial reaches that have much larger average annual flows. We concur; debris torrents and landslides can kill fish eggs and developing alevins and this was added to the text. Debris torrents and landslides do not always block fish passage. Debris torrents and landslides have adverse and beneficial effects to fish. The major variable is the timing. Adverse effects can directly kill fish eggs, yet within a year the effects from a debris torrent or landslide could have produced more complex habitat and a beneficial effect.

Comment 61: The DEIS appears to attribute the presence of bedrock channels to harvest activities rather than the flood of 1964. The harvest activities, as well as other anthropogenic effects, may have exacerbated the effects of this flood but I believe it is incorrect to imply that the presence of bedrock channels is a direct result of harvest activities. Furthermore, I believe it is inaccurate to state that the "bedrock channels have not yet recovered from these disturbances" (i.e. harvest of riparian areas and yarding in stream channels). Again, these disturbances certainly impacted the stream channels but I do not believe it is clear what the recovered channel would look like given the huge impact of the 1964 flood.

Response: The 1964 flood was addressed in Section 3.4.3.1, Large Woody Debris (LWD), Effects of Alternative A on LWD, "Past removal of LWD from streams, riparian harvest, riparian yarding, and the 1964 flood resulted in low levels of LWD throughout the watershed." The effects of the 1964 flood were added to Section 3.4.3.1, Hydrology, Temperature and Channel Morphology. This is a valid point. Bedrock channels are a result of past natural catastrophic and human-caused events. Both types of events can linger for decades. The main point is fish populations have persisted during these times in this watershed notwithstanding adverse effects. Good connectivity of populations is a critical issue and a benefit to fish in this watershed.

Comment 300: The DEIS fails to explain how the "historic range of variability" of fish populations can be used to determine whether the proposed action is likely to adversely affect fish and why the short-term increase in sediment is not a problem for sediment sensitive fish species with currently degraded habitat, currently depressed populations, and short life-cycles.

Response: The effects of sediment are extensively described in Section, 3.5, Fisheries. There are no anticipated excessive sediment levels which would critically affect fish. The quantities of sediment observed over past decades have not been limiting because of the continued reproducible populations. Forest management practices have changed dramatically since the 1960s and 1970s. If those practices prevailed today, there may be a concern. The extent of those practices have not been seen in almost two decades and fish populations are still reproducing in these streams. There is no known population extirpation, notwithstanding the decades past management practices. Population connectivity is good throughout the Elk Creek Watershed which results in a good likelihood of population reproductive success.

Comment 500: "Salvage and other harvest have a negligible to nil effect on fish populations when Riparian Reserves remain." This is a strong case for not cutting much in the Riparian Reserves. It must also be balanced with the need for LWD and rebuilding habitat complexity.

Response: There is no salvage planned for Riparian Reserves under the Preferred Alternative with the exception of 11 acres in the research portion of this alternative. The Riparian Reserve Thinning restoration projects are designed to accelerate the development of late-successional habitat and large conifers for future LWD. There is no commercial wood removal planned from the riparian restoration projects, and there is a "no treatment buffer" of 50' on fish-bearing streams and 30' on all others.

Comments 207 and 213: Fires are a primary mechanism of large wood recruitment to streams (3-79). Removal of large quantities of large wood will limit recruitment of large woody to streams that are already severely degraded in terms of large wood and the aquatic habitat complexity it provides, (3-49, 3-68) If the large trees are retained they may some day be delivered to streams via landslides, but if the large snags are removed they will never reach streams.

Response: Riparian Reserves were designed to supply LWD to streams over time. The delivery of large wood to streams was addressed in Section 3.4.3.1 Water Quality/Large Woody Debris Under the proposed Preferred Alternative, the stream buffer zones are excluded from salvage of dead trees, which will be available as coarse woody debris (CWD) in the streams. In addition, risk analysis of mass wasting identified 92 acres of BLM land with high-risk landslide potential (see Map 3-2 and 3.3.3.1 Mass Wasting - Uplands). Of the 92 high-risk acres approximately 7 acres have a realistic potential for delivery of CWD to the streams via landslides, i.e. they are within 400 feet of streams. Approximately 4 of these acres would be salvaged in Alternative G. There is no removal of trees within the Riparian Reserves, except for the 11 acres that are included in the research units. Scientific literature (Minshall, et al. 1989, p.111-199) indicates large wood will not reach streams from the small tributaries unless there is a landslide. Large wood from a landslide would provide fish habitat complexity.

Comments 467, 491, and 501: The extensive herbicide use by industrial foresters could also be harmful to fish and populations must be monitored for effects using present population numbers and health as a baseline.

Response: It is a valid point to monitor for herbicides, and the appropriate state agencies oversee these activities on private land. The BLM visually monitors its forest stands and would take note of any effect from operations on adjacent properties.

5.4.3.8 Vegetation

Comment 278: Please replant at a fairly low density and avoid the need for future thinning and other stand management costs. Let's be patient and allow these stands recover slowly as diverse early seral communities. Diverse early seral plant communities are becoming less common and we should encourage slow and easy regeneration of forest communities.

Response: The high and moderate severity areas are planned to be replanted at a 10'x10' spacing which is approximately 1/3 fewer trees per acre (tpa) than is typically planted on Matrix allocated land. These areas would not be replanted unless the stocking falls below 100 conifers per acre. Maintenance treatment, to encourage seedling survival, would occur on only ½ of the seedlings, unless the stocking level of seedlings falls below 250 tpa. The reforestation plan is described in Appendix E and the low density stand development is referred to in the Section 3.6.3 Vegetation, Environmental Consequences.

Comment 287: One hypothesis is that snag/big limb fall was an important and greatly under-appreciated process that strongly influenced early stand dynamics and stocking in young forests established after wildfire. One reason we don't have a sense of this process is that we see so few young stands that have a full complement of snags left after fire. Our mental images of young stands come from clearcuts.

Response: In the Preferred Alternative, areas burned with high and moderate severity, less than 10 acres, would not be salvaged, and all snags and dead wood would be retained. The areas to be salvaged follow the recommendations of the DecAID Wood Advisor for snag and dead wood retention levels. The research portion of the alternative compares different levels of snag and dead wood retention, which is intended to reveal more information about these processes.

Comments 26, 31, and 32: Reforestation efforts and maintenance are not described in any detail. The resource professionals from the silviculturists to biologists and soil scientists, should describe what these sites will look like over time and how the conditions meet Late Successional Reserve goals, given various reforestation scenarios. The BLM needs to develop a plan, within a responsible time frame, backed with proven science that sets a course to develop another forest.

Response: Table K-1 "Sample Description of Potential Treatment Area by Restoration Activity" presents comparisons, by treatment alternatives, of stands with the restoration treatments, projected 50 years in the future. In response to public comments similar to this, Table 2-4 "Stand Replacement Trends and Consequences – Fire Effects" has been amended and now describes the stand-replacement trends and consequences of reforestation efforts and subsequent treatments at 15, 50, and 80 years of age. Stand modeling, with the Organon Model, was used to project possible stands in the future. Also, the Stand Visualization System (SVS) was used to give a pictorial representation of stands in the future. Chapter 2.3.2.2, Reforestation gives a brief description of the reforestation plan, Map 2-4 depicts the areas of high and moderate burn severity that would be planted, Table 2-1 gives a description of the reforestation plan by alternative, and Appendix E, Proposed Restoration Projects, Reforestation, describes the reforestation plan along with desired future conditions.

Comment 86: The stand exam procedure in Appendix D at D-3 notes that trees are coded as "12" (fire killed) or "13" (60% probability of mortality - include definition of dying trees graph). However, no dying trees graph was available in the documents.

Response: A probability of tree mortality graph has been added to Appendix D, Salvage, in the FEIS.

Comment 89: First, no mention is made as to whether the trees that experienced mortality were predominantly understory or overstory. For example, a stand where 40 percent of the understory trees experienced mortality could easily support nesting or roosting spotted owls, and in fact may have improved nesting, roosting, and foraging habitat, depending on site-specific conditions. Second, as described above, it is unclear in the DEIS how tree mortality was determined.

Response: In Alternative G, the Preferred Alternative, salvage would not take place in stands unless they are 10 acres or larger and have less than 40 percent canopy closure. The 40 percent canopy closure refers to overall canopy, which includes both overstory and understory above eye level. If the canopy closure was greater than 40 percent, inclusive of all levels as measured at eye level and above, then the stand would not be entered. "Guidelines for Selecting Fire Injured Trees that are Likely to be Infested by Insects in Southwest Oregon Forest" was used to help estimate numbers of dead trees in an area for planning and analysis purposes. However, for purposes of salvage, a "dead tree" is defined as one containing no apparent sign of green foliage.

Comment 105: Interfering with the natural events within an older forest habitat, (something that has been habituated for tens of thousands of years), is an obstruction to the intent of treatment and management within an LSR.

Response: The restoration actions planned in this EIS follow the guidelines set forth in both the RMP for the Medford District, part of the NFP, and in the South Cascades LSRA for treatment of younger stands, and are intended to improve late-successional habitat. The salvage operations planned are also within the guidelines of these two documents.

Comment 107: Please, do nothing within these LSRs which does not improve the older-forest structure or improves habitat for wild fish in the Elk Creek watershed.

Response: The restoration activities planned are intended to improve or accelerate the development of late-successional habitat within the fire area and the Elk Creek Late-Successional Reserve. The salvage operations are planned through the interdisciplinary process by specialists in the resource fields that are considered in this EIS. Each alternative is analyzed to determine the environmental consequences of the actions, and actions are not planned that would have detrimental effects on the LSR.

Comment 36: The BLM needs to very carefully explain their plan for reforestation establishment and maintenance to ensure sufficient seedlings achieve a free-to-grow status and grow at an adequate rate to become the desired future forest, regardless of the alternative chosen.

Response: Appendix E, Proposed Restoration Projects, Reforestation, gives a description of planned reforestation and summary of potential vegetation maintenance treatments for the establishment of future stands in fire areas. Table 2-1 gives a summary of reforestation efforts by alternative and Table 2-4 gives a summary of potential treatments and stand conditions as the stands grow at 15, 50, and 80 years of age. Section, 3.6.3, Vegetation, Environmental Consequences, also describes effects of treatments to stands by alternatives.

Comment 41: How do current conditions relate to what the ecological communities historically supported? What is desirable and what will happen over the next 50 to 100 years with the standing material, if it is not removed?

Response: Section 3.10.2, Fire and Fuels, describes historic conditions and fire. Section 3.6.2.1 has been amended to include discussion of historic and current conditions in relation to plant series. Table 2-4 gives a summary of potential treatments and stand conditions as the stands grow at 15, 50, and 80 years of age. Section 3.6.3 describes the effects of the salvage and fire-killed tree retention, by alternatives, under "Late-Successional Habitat" and "Insects." Section 3.10.3, Fire and Fuels, Environmental Consequences, describes the effects of all the alternatives relative to leaving the standing fire-killed trees. Additional analysis was included in Section 3.6.3, Vegetation, Environmental Consequences, in response to this comment.

Comment 77**:** Most of the sub-sections within the Vegetation Section adequately describe the direct and indirect effects to various habitat through the implementation of salvage and restoration; however, mitigations that will occur if impacts become significant are not described. For example, what will happen if the soil's organic matter has been destroyed by the fire (soil heating), and what if the replanting of habitat fails and only hardy, invasive species can grow in the soil?

Response: Section 3.6.2, Vegetation, Affected Environment, discusses high burn severity and its effect on plant series, stating it is unlikely that soil physical characteristics were changed with the possible exception of small isolated spots. Section 3.3, Soil, discusses burned soils and states that detrimentally burned soils have not been found. Many of the hardwoods and shrubs in the burned areas are now resprouting and conifer seedlings are emerging at various rates in much of the fire area. Section 2.3.2.2 discusses the plans for reforestation and Appendix E, Table E-6 discusses the reforestation proposals and the follow-up treatment along with plans for replanting should seedling stocking fall below 100 tpa (including natural seeding-in). It is not possible to cover all events that could occur. The EIS covers the likeliest of scenarios with some potential remedies for possible problems.

Comment 175: Page 3-109 focuses too much on the short-term and fails to discuss any long-term impacts of salvage on quality LSOG development.

Response: Section 3.6.3.1, Vegetation, Environmental Consequences, discusses the snag and coarse woody debris retention levels and the relationship to long-term site productivity and future late-successional habitat. This section has been updated in response to these comments.

Comment 176: The EIS (3-190) indicates that material >16 inches may persist until the next stand, however, these medium and large snags are exactly what the BLM is proposing to remove in this proposal, and they are leaving behind the small material (<16") that will NOT persist.

Response: The Preferred Alternative proposes to leave all snags and trees in fire-killed areas less than 10 acres. Within the harvest units, the DecAID Wood Advisor was used to determine the number of snags and amount of coarse woody debris that is desired for "wildlife and ecosystem processes" (*Snag Dynamics in Western Oregon and Washington*, J.L. Ohmann, 2002). Snag levels would be left over the fire area, including all areas of high and moderate severity burn, at or above levels for snag and percent ground cover tolerance levels suggested in the DecAID Wood Advisor for Douglas-fir (30 percent) and white fir (50 percent) plant series, Southwest Oregon Conifer Hardwood Forest. These levels consider snags of all size classes including the largest, greater than 31" DBH. Figure 2.3-2 has been added to show distribution of trees remaining and harvested within each alternative by diameters. The apparent contradiction suggested by the commenter was identified in the DEIS, Section 1.2.3, page 1-5.

Comment 181: The EIS failed to consider the differing fall rates of large vs. small snags see: "Snag Dynamics in Western Oregon and Washington," Janet L. Ohmann, July 26, 2002.

Response: "*Snag Dynamics in Western Oregon and Washington*" Janet L. Ohmann, July 26, 2002 is an unpublished paper included in the DecAID Wood Advisor website. The information from the website was reviewed and included in the development of Alternatives D and G. This reference has now been incorporated into the EIS administrative record.

Comment 183: The EIS does not recognize the fact that salvage logging will simplify the regenerating stand and make it less likely to develop into complex older forests.

Response: Snag and down wood retention levels would meet or exceed DecAID Wood Advisor levels for stands in Southwest Oregon. Regeneration would be from planted mixed conifers and natural seeding (see Appendix E, Proposed Restoration Projects, Reforestation for details). Hardwoods are sprouting in the fire area and would be retained, and only cut when they are in contact with selected conifers (50 percent of the conifers would receive no removal of competing vegetation). Removal of salvage would not reduce the diversity of the regenerating stand.

Comment 184: Page 3-103 says that the alternatives differ in the rate of attainment of late-successional old-growth, but the EIS does not discuss the differing "habitat quality" that will be developed by the alternatives. Salvage areas will be deprived of important legacies from the prior stand and develop lower quality LSOG.

Response: Table 2-2 summarizes the effects of the alternatives on various types of habitat, including late-successional habitat. The analysis summarizes the effects or the number of acres affected and compares them by alternative. Table 2-3 summarizes the cumulative effects of the Preferred Alternative. Section 3.6.3 discusses the environmental consequences of the alternatives and compares the effects of each alternative on vegetation, including late-successional habitat. Tables 2-4 and 2-5 project the development of the future stands in the salvage areas and restoration project areas at various stages in the future, under the Preferred Alternative. This alternative follows the guidelines of the DecAID Wood Advisor for snag and CWD and retains more than the suggested amount in tree sizes greater than 31" DBH, as determined by stand exams in the stand-replacement fire areas, leaving legacy trees for long-term site maintenance.

Comment 186: The EIS failed to consider information such as Franklin, J.F., K. Cromack, Jr., W. Denison, A. McKee, C. Maser, J. Sedell, F. Swanson, and G. Juday. 1981. Ecological characteristics of old-growth Douglas-fir forests. PNW-GTR-118. USDA Forest Service. PNW Research Station. February 1981.

Response: The EIS refers to a variety of publications and information including the DecAID Wood Advisor and associated information: "Snag Dynamics in Western Oregon and Washington," J.L. Ohmann, July 26, 2002, "Applying Ecological Principles to Management of U.S. National Forests" Franklin, et al. 2000, "Restoring Complexity: Second-Growth Forests and Habitat Diversity" A. Carey, T Spies, J. Franklin, 2002.

Pages 27 and 28 of the publication referred to in this comment, "Ecological characteristics of old-growth Douglas-fir forests" give levels of snag retention for old growth forests. The level of snag retention recommended in the Preferred Alternative is similar to these levels, even though this paper is geared toward forests in coastal and northern Oregon environments, which tend to have greater amounts of snags and downed wood. This reference has now been incorporated into the EIS administrative record.

Comment 298: How the preferred alternative will retard development of high quality late-successional old-growth habitat and lead to the development of lower quality habitat is not presented in an accurate, clear, complete, and unbiased manner.

Response: This comment is unclear as BLM has not asserted "...the Preferred Alternative will retard development …" Table 2-2 summarizes the effects of the alternatives and compares the rate of attainment of late-successional habitat by alternative. Salvage would not retard the development of high quality late-successional old growth habitat because snags would be retained at sufficient levels to provide habitat. Eighty-seven percent of the snags would be retained in the salvage area (DEIS, pg xvi). Due to the treatment of existing stands in the watershed, restoration activities in the stand-replacement fire areas, and various fire-killed snag retention levels, most alternatives, including the preferred, show an increased rate of development of late-successional habitat over no action. Restoration activities are designed to improve the development of late successional habitat. Tables 2-4 and 2-5 provide summaries of how Alternative G would lead to the development of late-successional habitat. See the Restoration Effects discussion in the DEIS on pages 3-187 and 3-195. Information was added to the wildlife discussion in Section 3.12.3.1, Species Associated with Late Successional Habitat. This discusses the value of not salvaging in the low and very low underburn to the development of late-successional characteristics.

Comment 394: Page 3-98 of the DEIS acknowledges that "the early seral stage areas that burned have very low survival rates, compared to stands in late seral condition." Yet the FMZ strategy appear to be to maintain 1,300 acres (much within the late-successional "reserve") in a permanent early seral condition on late-successional associated species are not fully disclosed.

Response: See project design features in Appendix E. In unburned areas, the majority of conifers cut would be 6 inches in diameter and less. This will not change the age class of the overstory.

Comment 75: In the Vegetation Section, on page 3-103 there is no actual impact listed under the salvage section. The writers state that the impacts of salvaging, in general are negligible. What about erosion and nutrient cycling?

Response: This particular statement refers only to the salvage of roadside hazard trees outside of planned salvage units. This would consist of scattered trees removed within 200' of the road, primarily above the road, dispersed over the entire fire area. It would also be outside of riparian areas, as trees there would not be salvaged. Because of the scattered nature, small amount of area affected, and proximity to road allowing for little ground disturbance, the impacts were determined to be negligible.

Comment 76: On the same page under the reforestation section, it is stated that it is unlikely that there will be any cases of beetle infestation. How was this conclusion determined? What mitigations will occur if the unlikely beetle infestation did occur?

Response: The post-fire discussion of insects states, "In most cases based on observations on past southwest Oregon wildfires, insect populations have not built up to any substantial amount in stands outside of the wildfires. It is very likely fire-damaged trees would be infested and killed by insects for at least four years after the fire. Outbreaks of large beetle populations have most always been in cases where beetle populations were high and insects were active in the area before the fire (Goheen 2003). Infestations of adjacent stands by both Douglas-fir beetle on Douglas-fir and western pine and mountain pine beetle on pines would likely be limited to stands adjacent to or within the fire perimeter."

Comment 237: Page 2-62 uses an unclear baseline for describing the likely incidence of insects. Shouldn't the no action alternative be used as the baseline?

Response: Table 2-2 and Table S-3 were corrected to reflect the change as pointed out in this comment. The No Action Alternative is the baseline.

Comment 261: The NEPA document failed to consider the beneficial effects of insects.

Response: Section 3.6.2.2 describes the increases and decreases in insect populations, by insect type. This section has been amended to include information suggested by this comment. Section 3.12, Wildlife, analyzes the effects on wildlife species, including the effects of the change in insect populations on wildlife species and populations.

5.4.3.9 Special Habitats

Comment 434: Currently the BLM does not know, and has not disclosed, the stand composition and location of Riparian Reserves. (DEIS 3-45) Rather than disclose and analyze the functionality of existing Riparian Reserves, the BLM simply promises that "Riparian Reserve surveys will be completed on BLM-administered lands within the fire perimeter." (Id) This promise does not qualify as a description of the affected area or allow for informed decision making regarding potential environmental impacts. It also does not inform the reader about the location or stand composition of Riparian Reserves outside of the fire perimeter. Salvage and green tree logging and yarding proposals were developed before the agency had site specific riparian information available.

Response: The commenter is not correct. The DEIS described the general location of Riparian Reserves in Section 3.7.1, Special Habitats, Methodology ("320 feet on either side of fish-bearing streams and 160 feet on either side of non-fish-bearing streams") and described pre- and post-fire riparian vegetation inside and outside the fire perimeter in Section 3.7.2.1. The locations of the proposed riparian habitat restoration projects were disclosed in Map 2-2. See Section 2.3.2.2 or Appendix E, Proposed Restoration Projects, Riparian Reserve Thinning, for a description of proposed thinning projects in riparian areas inside and outside the fire. This proposed thinning was based on forest inventory information from GIS data. The surveys referred to hydrological surveys in DEIS 3-45, not stand exams. These hydrological surveys were conducted in the summer 2003 and merely refined existing data by validating the extent and classifications of streams. The results of those surveys are incorporated into the Final EIS (Sections 3.4.2.1, Hydrology, Channel Morphology and 3.7.2.1, Special Habitats). Miles of streams and acres of Riparian Reserves were adjusted to reflect the new data. A map showing the Riparian Reserves, proposed riparian restoration projects, and the three research salvage units containing 11 acres of Riparian Reserves was also added to the Final EIS (see Map 3-6). Salvage would occur only on 11 acres in riparian areas in three research units. See Map 2-6(f) for locations of proposed research units. See Appendix D, Salvage, for a summary of data from stand exams that were used to write salvage prescriptions in the research units. All other trees that are cut in Riparian Reserves, for roadside hazard or in riparian thinning units, would be left on-site. No ground-based yarding equipment would be used in salvage acres in the Riparian Reserves.

Comment 346: Riparian Reserves have not been adequately identified with maps or on the ground. The DEIS (p. 3-45) states that "BLM Riparian Reserves will be completed on BLM-administered lands within the fire perimeter" but does not say when this will be accomplished.

Response: The EIS states when this will be accomplished in the third sentence of the 5th paragraph in Section 3.4.1, Methodology. The sentence reads, "Streams in the burned area would be surveyed and ground verified prior to any project implementation." Map 3-6 was added to show the extent of Riparian Reserves on BLM-administered lands. This map also shows riparian restoration projects and where reserves would be entered for research purposes. With the exception of the West Branch of Elk Creek, note the limited amount of BLM lands on 303(d) listed streams or the mainstem of streams therefore limiting the influence of BLM management on these streams.

5.4.3.10 Special Status Plants

Comment 108: The BLM should be very aggressive in survey for species listed under the Survey and Manage criteria of the Northwest Forest Plan.

Response: All pre-disturbance survey and protection requirements for Survey and Manage species will be followed (see Section 3.8.3, Special Status Plants and Section 3.12.3.1, Wildlife).

Comment 239: Page 3-146 analyzed the effects on special status plants as if this was Matrix.

Response: The effects of specific activities on special status plants are the same regardless of the land designation on which they occur.

Comments 382 and 384: As of publication of the DEIS these green tree stands have not been surveyed for sensitive and survey and manage species or for the federally listed Northern Spotted Owl. The DEIS contains no (as in zero) site specific information regarding sensitive, survey and manage or listed species. The BLM has responded to Freedom of Information Act (FOIA) requests from the public for survey information by indicating that surveys have not been completed. The DEIS fails to disclose the location, frequency and distribution of survey and manage species to the public in a timely manner that will allow for comments that are reflective of the actual lay-out of timber sale units and new logging roads.

Response: A summary of S&M and special status plant sites documented in the Elk Creek Watershed during surveys conducted prior to the Timbered Rock Fire, was included in the DEIS in Sections 3.8.2.1, 3.8.2.2, 3.8.2.3, and in Table 3.8-1. Surveys for special status and S&M vascular plants were conducted in summer 2003 in proposed salvage units, temporary roads and landings, and in some late-successional forest habitat restoration, Riparian Reserve thinning, and FMZ units. Surveys for special status and S&M lichens and bryophytes were conducted in proposed temporary roads and landings, in the event that some green trees are cut to facilitate logging operations. Results of the surveys are included in the Final EIS (see Section 3.8.2 and Appendix L, Tables L-3 and L-4). Vascular and non-vascular plant surveys for special status species would also be completed in all restoration projects prior to implementation. Pre-project surveys for S&M and special status fungi are not required (see Section 3.8.1). Because the timeline for implementation of some Timbered Rock restoration projects is more than two years in the future, surveys for botany and wildlife would not be conducted in those areas until one or two years in advance so the surveys would remain current.

All S&M and special status plant and wildlife sites discovered in project areas would be protected, as required by BLM policy. Survey records for completed surveys are public information and are available upon request. No additional impacts beyond those disclosed and analyzed in the EIS are anticipated to special status and S&M plant species because all project areas would be surveyed and sites would be protected. Surveys for red tree voles were completed for all FMZs proposed in suitable RTV habitat inside and outside the fire perimeter in summer/fall of 2003. Sixty-four active red tree vole nests were found. These would be protected as required under *Management Recommendations for the Oregon Red Tree Vole, version 2.0* or the most current guidelines. Required surveys for S&M wildlife species would be completed prior to implementing the projects altering suitable habitat, following current interagency protocol. All known sites would be protected according to current interagency management guidelines designed to protect viability of the species. Historic spotted owl sites were surveyed in 2003, with results shows in Appendix N, Table N-3. These records for completed surveys are public information and are available upon request. Appendix N, Table N-10 contains a summary of the analysis of S&M special status wildlife species and birds of conservation concern considered. The analysis was based on professional experience and knowledge, personal communications, field surveys (including bird and pond surveys), records, and resource books indicating range and habitat needs for species. Special Status Species confirmed or suspected to be present considered to be potentially impacted by the proposed salvage and restoration projects were discussed in the document. USFWS released a list of Birds of Conservation Concern that meets the Migratory Bird Treaty Act. Birds of Conservation Concern known to be present in the Medford District were discussed in the FEIS (Section 3.12). Since the newly fire-killed dead trees are not habitat for RTV, mollusks, or GGO, no surveys would be required in salvage units. See response to Comment 388 in Section 5.4.3.14.

Comment 514: Even though fire has changed the vegetative community, surveys should be done before management takes place.

Response: Surveys for S&M and special status vascular plants were conducted in salvage and some late-successional forest habitat restoration and Riparian Reserve thinning units in summer 2003. Surveys for S&M and Special Status vascular plants, lichens, and bryophytes would be completed in all restoration projects prior to their implementation. Surveys for Special Status and S&M lichens and bryophytes are not required in high and moderate burn severity areas because they suffered mortality during the fire. Sites that are discovered would be protected according to BLM policy. Section 3.8.2 and Appendix L, Table L-3 contain summaries of surveys completed and sites discovered as of October 2003.

Comment 515: Fungi associated with late-successional forests need to be re-surveyed because of their associations with old growth trees.

Response: No S&M or special status fungi that have been discovered in the Elk Creek Watershed are located in proposed salvage or restoration units. No new fungi surveys would be conducted because all S&M and special status fungi known to occur or suspected of occurring in the Medford BLM District are in categories that do not require pre-disturbance surveys. However, if any sites are discovered during other field work, they would be protected as required (see Section 3.8.3.3).

5.4.3.11 Noxious Weeds

Comment 454: The courts have recently held that failing to address an action alternative that would prevent the introduction of noxious weeds is arbitrary and capricious, and violates NEPA for failing to consider a reasonable range of alternatives (Blue Mts. Biodiversity Project v. United States Forest Serv., 229 F. Supp. 2d 1140, 1147 (D. Or. 2002))

Response: The above reference relates to an environmental document where the Purpose and Need was to control noxious weeds. The Timbered Rock Fire Salvage and Elk Creek Watershed Restoration EIS Purpose and Need is very different. Noxious weeds were identified in this EIS as a minor issue (see Section 1.5.3.3). Specific PDFs are designed to reduce and/or prevent the spread of noxious weeds.

Comment 372: The FEIS should describe proposed monitoring of invasive species, with appropriate treatment as needed.

Response: Monitoring and inventory efforts for noxious weed locations are discussed in the DEIS, and are ongoing. When weeds are found, and if funding and/or resources are available, control methods, as outlined in EA-OR110-98-14, are applied.

Comment 373 and 490: The FEIS should discuss post salvage operation plans to minimize invasive species. Proposed prescriptions for an area after salvage will also affect the extent to which invasive species may spread. The DEIS is not clear regarding what the plans are for land use after salvage is complete. Will the natural forest be allowed to reestablish?

Response: All ground-disturbing activities will include mitigation measures, as outlined in Section 2.3.1.3 (PDFs), i.e., washing vehicles and equipment prior to entering BLM lands, using weed-free seed when restoring disturbed areas, actively pursuing new weed infestations and treating them using methods outlined in the Medford District Weed Management Plan (EA-OR110-98-14).

Comments 369 and 371: The FEIS should provide specifics of the Medford Weed Management Plan established by BLM. The DEIS indicates it will follow the Medford Weed Management Plan, but does not adequately identify which actions BLM will prevent or minimize the spread of invasive species.

Response: Table 3.9-1 illustrates noxious weeds known to be on BLM-administered lands prior to the fire. The BLM works closely with other land owners to control noxious weeds and to oversee activities anticipated to exacerbate the weed problem. The BLM uses many preventative measures, educational activities, and treatment methods to convey the importance of weed control with its neighboring landowners, school classrooms, other agencies, private businesses, and individual publics.

Comments 453 and 452: The DEIS inadequately discusses the status of noxious weeds in the planning area. The DEIS notes that road reconstruction, logging equipment operation, and livestock are sources of noxious weed introduction. Moreover, the entire area is subject to grazing, which is known to encourage the spread of noxious weeds. Despite this fact, the DEIS does not address these combined vectors for noxious weed introduction and spread.

Response: Whether actions are taken on BLM-administered lands or not, actions have been, and continue to be taken on private lands, and therefore the threat of weed encroachment is imminent. Utilizing PDFs, as outlined in the DEIS, and EA #OR110-98-14 will minimize the spread and establishment of noxious weeds (see Section 3.9.2.2).

Comment 370: The FEIS should identify and disclose vectors (e.g., logging roads, helicopter downdrafts) for invasive species and identify mitigation to prevent or minimize the spread of invasive species:

Response: Section 3.9.2.2 describes the vectors for invasive species post fire. The Medford District Integrated Weed Management Plan and Environmental Assessment (OR-110-98-14) describes the control measures available to the BLM. Section 2.3.1.3, (PDFs) describe the protection measures the BLM would take in implementing the proposed projects.

Comments 45 and 46: One of the concerns identified in the DEIS is about noxious weeds. The description of the current problem and potential increase is very poorly described. We believe the explosion of noxious weeds will be beyond any magnitude envisioned.

Response: The potential for noxious weed species to 'explode,' or totally inhabit an area is always possible, based largely on surface activities, precipitation, and lack of control activities. Until weeds actually appear, the most realistic action, especially in mixed ownership, is to minimize the potential for introduction by employing as many PDFs as possible, such as washing vehicles and equipment prior to entry, using only weed-free grass seed for rehabilitation efforts, and rehabilitating disturbed areas soon after the disturbance to minimize the establishment of unwanted species. Providing for the reestablishment of competitive vegetation (trees, shrubs, brush, and grass) can create shade and occupy space, which will inhibit the establishment of shade-intolerant noxious weed species like yellow starthistle.

5.4.3.12 Fire and Fuels

Comment 5: 428 acres burned hot, 1,347 acres burned with moderate intensity, 3,583 acres burned cool, and 3,103 acres did not burn at all.

Response: While this fire did exhibit a mosaic of burn intensities, there is no set classic ratio. The fire actually burned the following acres by severity class: High, 987; Moderate, 2,715; Low, 4,250; Very Low/Unburned, 3,822; Total 11,744 acres of BLM-administered land (see Table 3.10-3).

Comment 286: The NEPA analysis also tries to excuse salvage based on the reburn hypothesis, but the NEPA analysis fails to consider that they are only removing the commercial sized trees and leaving behind the more hazardous small material. If there is a reburn problem, the agency is making it worse instead of better.

Response: Salvage has minimal effects on reburn potential but may have major effects on future fire severity if a fire occurs (see Appendix M, Fuels, for discussion and modeling). This EIS does not propose salvage based on the "reburn hypothesis." See Objective 7 in Section 1.3.1.

Comment 392: Does the BLM contend that the FMZs would be effective at stopping high intensity fires?

Response: No. FMZs are designed to provide control and anchor points for low to moderate intensity fires. They are also designed to break up the watershed into 5,000 to 7,000 acre blocks to reduce future large fires.

Comment 396: The fuelbreaks are clearly and specifically designed for fire suppression actions--this is where firefighting is intended to occur. Accordingly, the environmental impacts of firefighting in fuelbreaks should have been specifically analyzed and explicitly disclosed.

Response: Analysis of future fire suppression actions is beyond the scope of this EIS. Construction of FMZs provides for both fire suppression and future prescribed fire treatments. The impacts of construction and maintenance have been analyzed in this document. The decision to utilize fuel management zones will be analyzed under the Wildland Fire Assessment, should it be necessary.

Comment 424: Page-2-23 indicates that the BLM believes that "fire exclusion" has altered the fuel and duff/litter layers with subsequent impacts to fire effects on soils. Yet no analysis is provided regarding the impacts of the proposed continued policy of "fire exclusion" on soils. While contending that the BLM's management policy of "fire exclusion" has altered fuel loadings and duff/litter composition the BLM also (inexplicitly) contends that the large increase in debris torrents and peak flows are "not associated with any management activities." (DEIS 3-27) Is the BLM contending that its continuing policy of fire suppression is not a "management activity?" Is the BLM contending that logging roads, equivalent clearcut acreage, and yarding impacts have had no impacts upon debris torrents and peak flows?

Response: The BLM policy on fire suppression is beyond the scope of this EIS. The anticipated, i.e. near future, increases in peak flows and the incidence of debris torrents are the results of the large-scale fire. The loss of canopy (peak flows), reduced tree root strength (mass wasting), reduced evapotranspiration (peak flows), and reduced soil infiltration rates (peak flows) are all contributing factors to the much higher incidence of debris torrents, following a large fire. The projected effects of proposed actions, including Alternative A, are analyzed in the DEIS (see Sections 3.3.2.2 and 3.3.3.2, Soil, Debris Torrents, Appendix H, Debris Torrent Analysis). The proposed salvage harvest of dead trees and the construction of nine temporary

spur roads (0.9 miles total) along geologically-stable ridge tops (Preferred Alternative G) will not have an impact on the incidence of debris torrents within the fire area. The proposed restoration activities, especially the reconstruction of the existing, high-risk stream crossings, would reduce the potential risk of debris torrents from existing roads.

Comment 456: [W]hile the BLM and ODF have been less than forthcoming in providing documents regarding fire suppression and response activities, several fire fighters have indicated informally that some of the Flat Creek portions that burned with high intensity were the result of a Heli-torch backburn. Why does the DEIS not disclose the location and impacts backburns and burnouts?

Response: No back burn operations were conducted on the Timbered Rock Fire. Burn out was utilized on the Timbered Rock Fire. Burn out is a tool that has been used successfully on many fires to control the fire's spread. The effects from the fire including burn out operations were included in the cumulative effects analysis. This EIS analyzed proposed actions and uses the post-fire situation as the baseline.

Comments 83, 84, and 88: However, the DEIS does not provide enough specific information on the definition of "severely" burned, or of "stand replacement" for me to assess the actual extent of tree mortality.

Response: See Appendix M for burn severity definitions. A stand-replacement wildfire, as defined in the Medford District RMP Glossary page 115, is "A wildfire that kills nearly 100 percent of the stand." The LSRA on page 171 summarizes candidate stands for area salvage as "stand replacement (>10 acres and < 40 percent canopy closure) area(s) of the event." The EIS used criteria from the LSRA in determining stand-replacement units to be considered for salvage.

Comments 202, 222, 223, and 283: Landscape fuel treatments are not likely to influence fire behavior at a landscape scale. The proposed action proposes to treat fuels at a landscape scale and cause significant soil damage, wildlife habitat disturbance, and hydrological effects, yet only reduce extreme fire hazard by a small degree across the project area. This fuel reduction benefit will only be realized during ideal weather conditions but will have virtually no effect during the most extreme fire conditions. What evidence does the BLM have that the proposed fuel breaks are effective given that they are discontinuous in the checkerboard landscape (and private lands are likely to be managed in a hazardous fuel condition with uniform interlocking branches close to the ground), in steep terrain, and the fuel breaks may not be maintained over time in a condition that will remain effective. Proposed fuel breaks will violate the prohibition on salvaging patches less than 10 acres.

Response: There is a role for well-designed FMZs which provide options for managing entire landscapes while providing anchor points for both suppression and prescribed fire. Landscape treatments can have major impacts in reducing fire severity. An appropriate combination of treatments would help reduce unwanted wildland fire effects and attendant ecosystem effects such fires often cause (Agee, et al. 1999). No treatments can be developed to deal with extreme conditions since the upper limits are not known. Only the maximums in the records are known, which is not the same due to the interactions of weather and fuel conditions as variables. Projects have been designed to reduce dependency on private land. The effects of the FMZs are presented in each resources environmental consequences analysis by alternative. Also, see the fire management plan in the LSRA. See the response to comments 224 and 398 in this section.

Comment 450: Plantation establishment and removal of fire-resistant trees in salvage logging operations leaves too little natural forest to buffer the spread and intensity of fires. Post-fire logging and plantation establishment, as contemplated in the Timbered Rock DEIS, will reinforce a growing tendency toward high fire severity. The DEIS failed to deal with the reality that post-fire logging irreversibly hinders the natural low-severity fire regime.

Response: Salvage operations would only be removing trees that were fire-killed. A fire-killed tree is defined as "one containing no apparent sign of green foliage." Reforestation projects and stand restoration projects are all designed to accelerate the rate of development of late-successional habitat through thinning, with slash treatment in existing stands, and wider spacing for conifer planting in high and moderate burn severity areas, with limited maintenance of competing vegetation (see project design features in Appendix E, Proposed Restoration Projects). This is to insure survival and growth of conifers but allow for reduced fire hazard when compared to a typical, higher density conifer plantation. There is no scientific evidence to support the assertion that post-fire logging irreversibly hinders the natural low-severity fire regime. In FMZ unburned areas, the majority of conifers cut would be 6" or less in diameter. This will not change the age class of the overstory.

Comments 399 and 400: The analysis for the Herger-Feinstein Quincy Library Group Recovery Act disclosed current research findings from Dr. Mark Finney that disputes the efficacy of linear fuelbreaks, and instead, favors area-wide

treatments primarily with prescribed underburning. Specifically, during the 90th percentile of fire weather, Finney's analysis showed that spotting easily breached the linear fuelbreaks are both unsafe and ineffective for their primary intended function: fire containment during severe fire weather conditions. Area-wide treatments, on the other hand, were demonstrably superior in that they both provided multiple options for fire containment lines, and also performed actual fuel reduction which reduced fire behavior and effects. They also resembled more the natural mosaic pattern created by wildland fires than the entirely artificial structure of linear fuelbreaks.

Response: This is true. However, these Fuel Management Zones could also serve as control points from which to do future landscape treatments, as described in Dr Finney's recommendations. In addition, these FMZs are designed to break the larger landscape into smaller sections (4,000 to 6,000 acres) that are more conducive to low to moderate intensity fires. The pine release, late-successional forest habitat thinning, and oak woodland treatments are proposed projects that meet the suggestion of area-wide treatments to reduce fire hazard. These treatments are all designed to reduce high intensity fires and reintroduce low intensity fires back into the LSR. "Give priority to treatment in or near recent stand replacement events" (USDA and USDI 1998, 152).

Comment 21: The Elk Creek watershed is clearly within its natural range of variability for fire return.

Response: The BLM disagrees. Fire return interval is defined as the number of years between two successive fire events in a given area (Agee 1993). The fire return interval in the Douglas fir series averages 18-25 years as documented in the LSRA (USDA and USDI 1998, 81). In reviewing the fire history table in the DEIS, it is apparent that there was a period consisting of 60 years with no large fires within the watershed. This would equate to missing two to three normal fire events, which would allow a heavier than normal fuel load to accumulate. In the early 1970s, a more normal fire return interval resumed. These fires have burned with a higher than normal severity due to fire exclusion in earlier decades.

Comment 4: Rebuild roads for future fire fighting--maximum full treatments and decommission no roads

Response: Roads in need of repair are being upgraded. All roads identified for decommissioning have been reviewed by an interdisciplinary team including a fire management specialist. Only roads that would not greatly impact fire suppression efforts were identified for decommissioning.

Comment 34: The fire return interval described by ecologists for the area is approximately 20-25 years. Local ecologists have shown the fuel types generated after a large event like Timbered Rock Fire can actually precondition these stands to burn again. The likely scenario is this will burn at least once, over the next 50 years, hotter than the last fire. The BLM should model fire behavior and show expectations of survival of these stands due to this kind of potential fire.

Response: In a fire dependent ecosystem, the natural process of vegetation regeneration is geared to frequent fires to maintain the system. Intensity is a term used to describe fire behavior which can be translated to vegetation damage. Fires can, and often do, burn with high intensity but low severity. Severity is a term used, in this case, to describe soil damage. The severity ("hotness") of these fires is determined by fuel moistures at the time of the fire and fuel loading, particularly in the larger size classes. Salvage can be a determining factor in fuel loadings (severity) for future fires (Brown, Reinhardt, and Kramer 2003). See the response to Comment 21 in this section.

Comment 43: The long-term consequences in the event of returning fires of greater magnitude, (due to the increased brush vegetation complex) should be described by alternative.

Response: Brushy vegetation may contribute to increased spread rates but does not necessarily contribute to high severity fires. The brush fuel models may have high rates of spread but generally have lower resistance to control than fuel models composed of heavier fuels which have a higher resistance to control. Table 2-4 was added to display vegetation and fire characteristics by salvage and no salvage alternatives (see Section 3.10.2.4, Fire and Fuels, for additional details). This information is also presented in Appendix K and in Table 2-5.

Comment 49: The BLM needs to more fully assess the relative risks of short-term management restoration and long-term consequences of "no" management, with regards to listed species, vertebrate viability, water quality and long-term productivity.

Response: The risks of short-term management restoration and long-term consequences were addressed in the environmental consequences in Chapter 3 of the DEIS. Table 2-2 and 2-3 summarize direct and indirect effects and cumulative effects.

Tables 2-4 and 2-5 have been added to show anticipated long-term trends and consequences in stand-replacement areas and in restoration projects.

Comment 50: The recent decade of greatly curtailed forest management and delayed planning for forest ecosystem restoration, only makes the case more extreme that the long-term impacts of 'no-management' quite likely far exceed the short-term impacts of salvage, reforestation and restoration activities. The BLM should display these, side by side comparisons, for the basis of any alternative they choose.

Response: This information is presented in Appendix K and in two tables added to the Final EIS (Tables 2-4 and 2-5).

Comment 53: All road decommissioning should be tied to an overall plan that does not inhibit future access for fire suppression or inhibit landowner access. The current Alternative "G" needs strengthening in this area.

Response: All roads identified for decommissioning have been reviewed by an interdisciplinary team including a fire management specialist. Only roads that would not greatly impact fire suppression efforts were identified for removal. Where road use agreements are in place, coordination with these landowners has occurred.

Comment 230: Appendix M fails to account for the fact that natural regeneration is more patchy and less uniform, while post-salvage plantations are more likely to regenerate as large expanses of dense interlocked branches. From this perspective the unsalvaged regenerating stand is less prone to intense fire. The EIS must disclose this.

Response: Salvage prescriptions have no bearing on reforestation prescriptions. Table 2-4 addresses this issue. Reforestation recommendations reflect these concerns.

Comment 234: The EIS does not adequately explain the spatial and temporal nature of the fire risk. The fire removed much of the small fuels and ladder fuels so much of the area is now at low risk of fire (3-158). The findings in the LSRA and Watershed Analysis may no longer be accurate.

Response: The discussion on page 3-158 was taken out of context. The discussion was specific to owl activity centers. See 3.10.2.4 for discussion of pre and post-fire fuel models and how they changed as a result of the fire.

Comment 265: Fine and mid-size surface fuels also occur in unsalvaged areas, but accumulate gradually over time. It is unlikely that fuels in an unsalvaged area would reach the same magnitude as in the post-salvage scenario because decomposition breaks down new material accumulates.

Response: Decomposition rates vary by exposure to moisture and exposure to decomposition agents. There will only be minimal amounts of 1 inch minus fuels in the salvage area. This statement is based on the fact that salvage is proposed for fire-killed trees which burned at high enough intensities to reduce or eliminate the twigs and needles present on the boles. See response to Comments 79, 93, 94, 95, 447, and 449 in Section 5.4.3.12.

Comment 295: The spatial distribution and degree of fire risk in different time periods in the future and under different management alternatives is not presented in an accurate, clear, complete, and unbiased manner.

Response: These are discussed in Appendix K.

Comment 218: The EIS has not documented the existence of high risk or made a credible case whether and how each of the proposed actions will reduce such risks.

Response: Risk is derived primarily from three factors; ignition source, weather, and fuel conditions. Risk can be altered slightly as it relates to fuels, however, fire hazards can be reduced by modifying fuel conditions.

Comments 217, 220, 229, 233, and 448: And the EIS never address the fire risk posed retaining virtually all snags 16 inches DBH and smaller, which also pose a significant fire hazard and maybe even a more serious hazard due to its smaller size.

Response: This size material does pose an increased hazard. The No Action Alternative addresses leaving all material. If salvage could be completed sooner, fire-killed tress under 16" would likely have been salvaged and residual slash treated.

Comments 224 and 398: C-14 of the Northwest Forest Plan clearly states "Salvage in disturbed sites of less than 10 acres is not appropriate because small forest openings are important components of old-growth forests. How many acres of burned stands less than 10 acres are proposed for logging under the FMZ prescription? Volume must be incidental (B-11), but the BLM is using FMZs as an excuse to salvage more large trees in the FMZs that would normally be off-limits because they are in disturbances smaller than 10 acres.

Response: The FMZ prescription includes approximately 10 acres of salvage included within patches less than 10 acres in size. Any volume derived from this acreage is incidental and is harvested to meet the needs of reduced fuel loadings (risk reduction) within the FMZ. This is consistent with the LSRA.

Comments 79, 93, 94, 95, 447, and 449: The document contains no discussion on the amount of slash per acre that will be left on the forest floor under each alternative. The project design features in Appendix E at E-4 and at E-18 require that slash from salvage units and Fuel Management Zones be piled and burned, but does not state that the slash be treated at the time of tree felling.

Response: Because of unit layout and the clumping of snags, there would only be minor variations in fuel loadings on logged units. The major cause of variation will be the number of acres treated. The following information is updated in the cumulative effects section of the EIS. Because the majority of salvage material was burned in the high to severe range, the majority of 1-hour timelag and a portion of 10-hour timelag fuels were consumed in the fire, leaving little on the trees to contribute to fuel loads in these size classes. In the 1-hour size class, 0-.2 tons per acre would be available. In the 10-hour size class, 1.5 to 3 tons per acre would be expected after logging. These amounts are minimal. The primary increase will be in the 1-3" size classes. In this size class, slash would be expected to range from 5-7 tons per acre. This loading would approximate the natural loading of an unburned stand in the southern Cascades. These size classes are subject to relatively rapid natural decay. Piling would not be completed at the time of falling. Piling would be completed after yarding, if fuel loading warrants further treatment. Salvage is only one facet of several treatments designed to work together to reduce fuel loadings and associated fire hazard in the watershed.

Comment 17: Most of the old-growth burned cool, while the plantations scorched. Save the plantations for matrix land, and leave the LSR as a reserve. The Spring Salvage Timber Sale Level 2 consultation (March 1998) concluded that the fuel break proposal would not be effective in controlling a large-scale, high intensity fire, although they might be effective in controlling small-scale, low-to-moderate intensity burns, these are the type of burns that need to be occurring within the LSR. Massive fuel breaks are ineffective for the LSR allocation.

Response: There seems to be some confusion over terminology. Total consumption of vegetation does not necessarily indicate a "hot burn" nor does lack of heavy crown scorch on larger trees indicate a "cool burn." Fires may burn through plantations quickly; however, their severity is dependent on the amount of large woody fuels and fire residence time. These large fuels may contribute to high sustained temperatures. High sustained temperatures can reduce long-term site productivity and alter soil structure. Large amounts of coarse wood (such as those found in "old growth") can and often do contribute to high severity and high intensity fires in all vegetation types. Fuel Modification Zones are indeed appropriate for the LSR as recommended in the LSRA (USDA and USDI 1998, 151). In reviewing the level 2 consultation, there are some major differences between the proposals. This EIS proposes leaving six snags per acre versus two. The majority of FMZs proposed (66 percent) are shaded rather than total removal, as proposed in the Spring Salvage Timber Sale proposal. In addition, the project area is not adjacent to designated wilderness.

Comment 451: The DEIS failed to analyze and disclose the factors that mitigate the flammability of large fuels. It also failed to analyze the full range of adverse effects on wildlife, vegetation, and natural recovery processes (such as elimination of refugia during future fire events) that would result from salvage logging the large-diameter snags and logs. Accordingly, the analysis of trade-offs between removing or retaining the large-diameter snags and logs is incomplete.

Response: The factors that mitigate a large fuels contribution to fire behavior often do not exist in a post-fire environment. Closed canopies may reduce solar radiation and delay drying to some extent. In the areas proposed for salvage, this condition does not exist. Average 1,000-hour fuel moisture in this area ranges from a high of 40 percent or greater to a low of 12-14 percent. The moisture of extinction on 1,000-hour fuels is 30 percent. If the moisture content is below 30 percent, these fuels will burn until consumed or the fire is put out. Fire behavior prediction models, such as BEHAVE, do not use this size of fuel in making spread calculations. The DEIS, Alternative G discussion of direct and indirect effects of salvage discusses the impacts. Some discussion was added in the Final EIS concerning the effects of leaving the low and very low burn severity areas unsalvaged. This would leave an additional 8,000 acres of low to very low underburned habitat to provide refugia for wildlife using snags and CWD. Refugia would also be provided in the high intensity burned stands less than 10 acres with

less than 40 percent canopy and the acres set aside from salvage to meet snag and CWD levels. DEIS Table 2-2, page 2-53 and 2-54 shows that 87 percent of the fire killed trees >8" DBH would be retained and 47 percent of stand-replacement acres would not be salvaged. These areas would remain to provide large diameter snags and logs. Figure 2.3-2 displays the distribution of snag sizes in the fire area.

5.4.3.13 Air Quality

No comments were received.

5.4.3.14 Wildlife (General)

Comment 290: Be sure to protect the following bird species of conservation concern to the U.S. Fish and Wildlife Service: Table 8. BCR 5 (Northern Pacific Forest–U.S. portions only) BCC 2002 List.Yellow-billed Loon, Black-footed Albatross, Northern Goshawk (resident laingi ssp. only), Peregrine Falcon (including resident pealei ssp. in Alaska), Black Oystercatcher, Whimbrel, Long-billed Curlew, Marbled Godwit (beringiae ssp. only), Black Turnstone, Surfbird, Red Knot, Rock Sandpiper, Short-billed Dowitcher, Caspian Tern, Arctic Tern, Aleutian Tern, Marbled Murrelet (except where listed as Threatened), Kittlitz's Murrelet, Yellow-billed Cuckoo, Flammulated Owl, Black Swift, Rufous Hummingbird, Lewis's Woodpecker, White-headed Woodpecker, Olive-sided Flycatcher, Horned Lark (strigata ssp. only), Vesper Sparrow (affinis ssp. only)

Response: Of the list provided on Table 8: BCR 5 (Northern Pacific Forest-U.S. Portions), only six species are present in southwestern Oregon (DEIS 3-201): peregrine falcon, flammulated owl, rufous hummingbird, Lewis' woodpecker, white-headed woodpecker, and olive-sided flycatcher. These species were discussed in the DEIS (see Appendix N (page N-14), Wildlife Sections 3.12.3.1, 3.12.4.2, and 3.12.4.3). Bird surveys in 2003 did not find any flammulated owls, Lewis' woodpecker, or white-headed woodpeckers. No new peregrine falcon nest cliffs were found.

Comment 33: At what size do these trees have wildlife value? How long will it take by alternative to accomplish the LSR goals?

Response: Trees reach wildlife value at various ages to benefit various wildlife species. Trees begin to have wildlife value from shrub/seedling stage and continue throughout their lives. As the trees develop over time, the guilds of species that use different levels of stand development and density also change and develop. A stand is considered to become spotted owl foraging habitat in Southwest Oregon at 60-80 years age, although younger stands will receive foraging use. Table 2-1, Comparison of Alternatives and Table 2-2, Summary of Effects of the Alternatives, contain a comparison of the alternatives and a summary of the number of fire-killed trees removed and retained. Chapter 2 has been updated to respond to those issues through the addition Tables 2-4 and 2-5.

Comment 165: While priority should be given to salvage in areas where it will have a positive effect on late-successional forest habitat, salvage operations should not diminish habitat suitability now or in the future. The best available science indicates that the preferred alternative would have negative impacts on both the long-term and short-term suitability of the habitat. This is in direct violation of the NFP.

Response: NFP-ROD, page C-15 says that province level plans will establish appropriate levels of coarse woody debris and decay rates to be used. Levels will be "typical" and will not require retention of all material where it is highly concentrated, or too small to contribute to coarse woody debris over the long timeframes. It is expected that salvage standards and guidelines will be refined through the implementation and adaptive management processes. The REO memo in DEIS, Appendix A, page A-18 states that if proposed amounts of standing dead and down wood proposed for retention in salvage units were estimated from the DecAID tool, then the proposed action would be meet LSR objectives. The proposed salvage does not occur in late-successional habitat. Restoration thinning is intended to improve the development of late-successional habitat. See the response to Comment 164 in Section 5.4.1.2.

Comment 173: The EIS (2-60) makes an unsupported conclusion that salvage will have a negligible effect on late-successional old-growth habitat.

Response: The comment refers to a bullet summary in Table 2-2. The expanded text for owls and Alternative G (Section 3.12.3.1) elaborates on the statement.

Comment 174: The minimal snag retention being proposed in salvage area will fail to meet habitat requirements as soon as a few of the retained snags fall down.

Response: There is no guarantee as to how long reserved snags will remain standing. Very few snags in unentered units will remain standing in 60 years as the units return to mature structure. Ample snags will remain in unsalvaged units. Snag numbers and CWD to be retained are based on the DecAID Wood Advisor (see Appendix D). In area salvage units, the proposal retains 8 snags per acre in the Douglas-fir zone and 12 snags per acre in the white fir zone. These snags would be retained in clumps adjacent to the harvest portion of the unit.

Comments 168, 260, and 419: This project occurs in critical habitat unit (CHU) designated for the conservation and recovery of the northern spotted owl. The NEPA analysis must disclose the current condition of the CHU and how this CHU may fit into species recovery and conservation efforts. The agency must retain all options for species recovery and avoid taking actions that will limit options for recovery.

Response: See the discussion of critical habitat in Section 3.12.3.1, Environmental Consequences, Cumulative Effects for owls. Since the quality of the CHU was already reduced by the wildfire, the proposed action of salvaging some of the dead stems would have negligible impact to the network (as referenced in BO, page 77). Section 3.12.3.1, Environmental Consequences, Alternative G owl section has been expanded. Revised acreage figures are shown in Appendix N, Table N-4. Appendix B in the Biological Assessment includes descriptive narratives for the CHUs in Southwest Oregon (USDI, USFWS 2003, B-1 to 6).

Comment 39: BLM biologists need to evaluate how alternatives meet all their objectives for down wood, snags, crown cover, soil rehabilitation, wildlife habitat recovery [for all the species of concern]. The biologists need to evaluate if the goals are being met or not met, over the desired time frame. How do we get 20" DBH trees and when do they occur in the future? Is the current plan acceptable to the wildlife biologists, and what happens to populations of a guild of species, such as woodpeckers, if it takes 150 years, rather than 50 years, to get a desired number of 20" DBH trees?

Response: As stated on page 3-190 of the DEIS, goshawk, great gray owl, and fisher would benefit in the long-term (30+) years from activities designed to promote late-successional forest habitat. Also, see Table 2-2, Summary of Effects of the Alternatives. A review of stand-replacement trends and consequences of the fire salvage effects was done for the Final EIS (see Tables 2-4 and 2-5 in Chapter 2). In 50 years, conifers 8-16" DBH are expected and within in 80 years, conifers 10-24" DBH with canopy of 70-90 percent are expected. As stated in Appendix K, Table K-1, in 50 years, 30-80 year old stands would be 16–26" DBH with 80-100 percent crown closure in areas where thinning is proposed. At approximately 80 years old, trees in the Medford BLM begin to provide late-successional conditions.

Comment 99: The Effects Analysis for the Preferred Alternative G (DEIS Chapter 3 3.12.4.2 at 3-199 to 3-200) admits that "proposed salvage would reduce the amount of snags available for cavity nesters. Within the high burn severity stands, there would be little recruitment of large snags trees [sic] in the nest 80-100 years, until the stands recover... Snag and coarse wood levels would be below the LSRA...recommendations... There would be a reduction in the amount of foraging, roosting, and nesting habitat for primary and secondary cavity users. Future coarse wood amounts would be reduced in the high and moderate burn severity areas." Perplexingly, however, the next sentence reads: "Effects from the proposed action would be very low," and the analysis goes on to note that scientific research would be proposed to investigate the influences of post-fire salvage logging on wildlife.

Response: Additional information and analysis was added to Section 3.12.3.2, Cavity and Down Wood Dependent Species, Effects of Alternative G. DEIS, Table 2-2, pages 2-53 and 2-54 indicates that under Alternative G, 87 percent of the fire-killed trees over 8" DBH would be retained in the salvage area. It also shows that 47 percent of the stand-replacement acres on BLM would not be salvaged. One hundred percent of snags would remain in burned stands less than 10 acres and in stands with greater than 40 percent live canopy. Figure 2.3-2 in the FEIS "Distribution of Fire Killed Trees By Diameter" indicates 76 percent of fire-killed snags over 20" DBH would not be salvaged. These would provide habitat for cavity dependent species, and the effects of the proposed action would be low. As stated in DEIS, Appendix D, page D-30, it is estimated 80 percent of the trees from 10-16" DBH would not be salvaged because they would no longer be merchantable due to the delay in implementation of the salvage activities. This would result in additional snags available in the salvage units. As stated in DEIS, page 3-204, the scope of the research sites is small and scattered around the landscape. The research would leave 6 snags per acre on approximately 147 acres, and leave 30 percent of snags on an additional 135 acres, and all snags on the control plots. In the 85,424 acre watershed, this is negligible. Within the burned area, this is less than 0.5 percent of the total burned area. Impacts to birds from research is expected to be very low. Scientific research by Oregon State University

would provide an opportunity to study the impacts of post-fire management on avian and small mammal species specific to southwestern Oregon.

Comment 100: In other words, the loss of large dead trees from salvage logging in the Timbered Rock Project is likely to adversely impact species who utilize larger-sized burned trees for nesting and foraging. Raphael and White (1984) suggested that cavity-nesting birds in the Sierra Nevada needed at least 4.25 large (> 15") snags per acre, but that it was necessary to retain four times that many to ensure the long-term maintenance of those snags on the landscape, for a retention level of 17 snags per acre. The Preferred Alternative G suggests retaining six snags per acre in the experimental units, and eight to 12 snags per acre in remaining salvage units (greater than 10 acres). Therefore, about four times the targeted number of large-sized snags must be retained to achieve four well-decayed standing snags per acre in the long term, or 24 snags per acre in experimental units and 32 to 48 snags per acre in the remaining salvage areas.

Response: The proposed salvage under Alternative G would meet the Raphael and White (1984) paper with 8-12 snags per acre except in 1 proposed research treatment which would leave 6 trees per acre on 147 acres. Haggard and Gaines (2001) found that stands of 4-6 snags, >25 cm (≈10"), per acre provided the highest abundance, species richness, and nesting populations of cavity nesters. Alternative G provides 8-12 snags per acre on all acres except 147 acres where 6 snags per acre would be left. Outside the salvage units, 100 percent of existing snags remain, except snags identified as hazards (see Figure 2.3-2). Smaller snags provide foraging and nesting habitat for some species. Treatments with snags distributed in clumps and individually dispersed had the highest abundance and species richness of cavity nesting species.

Comment 102: In addition, adverse impacts to species dependent upon severely burned forests would be adversely impacted in both the short and long term under the Preferred Alternative.

Response: Table 2-2 shows the combined actions on BLM and private lands are not expected to lead to the need to list any species on the special status species list as threatened or endangered. There is no evidence that salvage would reduce the population viability of any S&M species, sensitive species, or any species identified as using cavities or down wood that could be present in the watershed. See the response to comment 100 in Section 5.4.3.14.

Comment 182: The EIS fails to recognize the multi-faceted value of dead wood as presented in recent publications such as: Rose, C.L., Marcot, B.G., Mellen, T.K., Ohmann, J.L., Waddell, K.L., Lindely, D.L., and B. Schrieber. 2001. "Decaying wood in Pacific Northwest forests: concepts and tools for habitat management," Chapter 24 in *Wildlife-Habitat Relationships in Oregon and Washington* (Johnson, D. H. and T. A. O'Neil. OSU Press. 2001)

Response: This chapter was used to provide background information for the DEIS. As stated in DEIS page 3-167, the book *Wildlife Habitat Relationships in Oregon and Washington* was used to determine habitat types and analyze species expected to be present in Elk Creek Watershed. This information and the DecAID Wood Advisor were used for up-to-date and specific information on species' habitat associations and key ecological functions as recommended in Chapter 24, page 585. Chapter 24 was also used as background information for nutrient cycling.

Comment 270: The snag retention requirements for this project fail to retain enough snags to provide habitat for viable populations of cavity dependent species. Since snags have a patchy spatial distribution, surveys to determine snag abundance require very large sample sizes relative to other general vegetation surveys.

Response: DecAID Wood Advisor was used to determine the recommended levels of snag and coarse woody material to be retained on the areas where salvage was proposed. Under Alternative G, approximately 76 percent of fire-killed trees over 20" would be left on BLM-administered land to provide habitat for cavity dependent species. Eighty-seven percent of fire-killed trees over eight inches would be left (see Figure 2.3-2). This would provide adequate snags for population viability of cavity dependent species. Stand exams completed within the fire area provided the snag levels post-fire. A description of stand exam procedures was included in DEIS, Appendix D, page D-3.

Comment 458: Pileated Woodpeckers - the DEIS fails to fully disclose or examine site specific and cumulative impacts to pileated woodpeckers.

Response: Pileated woodpeckers are not a sensitive species in Oregon. They are "bureau tracking," which are not considered as special status species for management purposes. They are also not listed on the USFWS Birds of Conservation Concern list. The USFWS list was not received in time to address in the DEIS, instead PIF focal species were used. This was changed in the Final EIS to reflect the current USFWS list of Birds of Conservation Concern.

Comments 143, 149, and 216: The DEIS goes on to state that under proposed alternative G snag and coarse wood levels would be below the LSRA and DecAID recommendations, and that significant snags would not be available for 8-100 years. Based on the LSRA and DecAID recommendations it is possible that snag retention at this level may cause critical harm to cavity nesting species. The BLM neither addresses this issue, nor offers any scientific research indicating that the extirpation of cavity nesting species are not the likely result of alternative G.

Response: The statements of pages 3-199 and 3-200 of the DEIS are in error and have been changed in the FEIS (see Section 3.12.4.2, Cavity and Down Wood Dependent Species, Alternative G, Direct and Indirect Effects). The statements on pages 2-63 and 2-64 (Table 2-2) in the DEIS are correct. The required snag levels in Alternative G are consistent with the NFP and LSRA (see DEIS, Appendix D, page D-29, Table D-5, Comparison of Recommended Snag and CWD Levels by Reference). DecAID Wood Advisor recommends 8-17 trees per acre and CWD from 3.6 to 6.7 percent ground cover for white fir, and 5-8 trees per acre and 2.0-3.6 percent ground cover in the Douglas-fir plant series. Table D-6 indicates that the levels for Alternative G meet this. In one proposed research treatment on approximately 147 acres, 6 snags per acre would be left. This meets the recommendations in DecAID for Douglas-fir series. DEIS Table 2-2, pages 2-53 and 2-54, indicates that under Alternative G, 87 percent of the fire-killed trees on BLM-administered land would be retained in the salvage area. It also shows that 47 percent of stand-replacement acres on BLM would not be salvaged. In burned stands less than 10 acres and/or with greater than 40 percent live canopy, 100 percent of snags remain. Snags in low and very low severity burn areas would also remain at 100 percent on approximately 8,000 acres. Remaining large snags would provide cavity nesting habitat until new stands begin contributing new snags in approximately 80 years. There is no evidence to indicate that extirpation of cavity dependent species would occur. Refer to Figure 2.3-2 for distribution of snags by diameter. See the response to Comment 143, 149, and 216 in Section 5.4.3.14.

Comment 236: The EIS reports incidental sightings of red tree vole nest material in the area (N-15) but says that red tree vole surveys (3-189) and cultural resource surveys (3-214) will occur after the DEIS but before the action takes place. The informed-decision-making principle of NEPA is to study first and decide after. Not the other way around. The BLM must include all survey and manage information in the NEPA document and use it to inform the range of alternatives.

Response: Surveys for red tree vole were completed for all FMZs proposed in suitable RTV habitat inside and outside the fire perimeter in summer/fall of 2003. Sixty-four active red tree voles were found. These would be protected as required under *Management Recommendations for the Oregon Red Tree Vole, version 2.0* or the most current guidelines. As stated in DEIS Section 3.12.3.1 page 3-189, projects in suitable red tree vole habitat would be surveyed and any sites found would be protected according to current management recommendations. Currently active red tree vole nests would be protected with a minimum 10 acre buffer (DEIS 3-190). See Section 3.15.2, Cultural Resources, Affected Environment for updated cultural resource survey status.

Comment 386: The statement that GGO would be completed unless the agency conducts the project outside of the seasonal restriction tells the reader nothing. Will surveys be conducted? We don't know. How many GGOs are in the logging area? We don't know. What will the impact of the logging be on GGOs? We don't know.

Response: BLM is required to survey for S&M species prior to habitat-altering activities according to current regulations. Old growth and late-successional forests are habitat for GGO. Surveys would not be required in salvage units. These are not late-successional/old growth forests. If a project would not alter habitat, for example an understory thinning, but could be a noise disturbance, a seasonal restriction would be in effect during the GGO nesting period. For a discussion of impacts to GGOs, see DEIS Section 3.12.3.1, Species Associated with Late-Successional Habitat, pages 3-188 through 3-195.

Comment 479: Eliminate from the plan: 33S1Wsec 13; south half sec 14; south half sec 12 (except decommission roads) east half sec 24; sec 11; east half sec 10; sec 2; south west corner sec 1; 33S1E west half sec 19; north half sec 25. These are an important refuge for wildlife. Road decommissioning in Sec 12 and 14 would be the one exception to this.

Response: This was considered. No activities are planned in T33S, R1W, south ½ Section 12, east ½ of Section 10 and sw corner of Section 1. North ½ of Section 25 is outside the project area. Projects in the other areas include thinning, pine restoration, and oak woodland restoration. These are all designed to improve late-successional characteristics, which would benefit wildlife in the area.

Comment 508: Bald Eagle habitat - It was not clear if the area with this designation is the current habitat of Bald Eagles. If not, what is the current condition of the land?

Response: As stated in DEIS page 3-176, the majority of bald eagle nests are in large trees near lakes, rivers, and ponds. The selected area for development of bald eagle nesting habitat is on a ridge overlooking Lost Creek Lake in one area and Elk Creek on the other (DEIS, Appendix E, page E-20). During the winter of 2003, an eagle was seen perched at the edge of Elk Creek near the location of one of the stands selected for eagle habitat projects. Eagles have also been observed flying over the ridge from Elk Creek to Lost Creek during the winter eagle counts (Hale, personal observation). Eagles currently do not nest here, but with successful nesting of bald eagles on the south shore of Lost Creek Lake and at the mouth of Elk Creek, it is a logical place to provide nesting structures for population increases.

Comment 512: Fisher presence is a very important indicator of the health of late-successional habitat because it requires a closed canopy. BLM should re-survey suitable for this species while maintaining as much suitable habitat as possible.

Response: Fisher surveys were done on the USFS lands in the Prospect Ranger District (DEIS page 3-174). There is no requirement for BLM to survey for fisher. Salvage would not affect fisher, because no salvage is proposed in late-successional habitat. As stated in DEIS, page 3-190, fisher would benefit in the long-term from activities designed to promote late-successional forest.

Comment 513: This [Red Tree Vole] is an important prey species for Spotted Owls in late-successional forests. Surveys need to be done for this.

Response: See DEIS page 3-189. No salvage operations are proposed within suitable habitat. Projects in suitable red tree vole habitat would be surveyed and any sites found would be protected according to current management recommendations.

Comments 385 and 156: Page 1-12 contends that surveys prior to the green tree logging would be conducted "prior to implementation." PDF 18 indicates that surveys for RTVs and mollusks would be finished prior to "activity." While PDF 30 simply indicates that rare vascular plants, lichens, bryophytes and fungi "will be buffered." Page 3-187 indicates that Goshawk surveys have not been done. Page 3-188 promises that Great Grey Owl (GGO) "surveys would be completed" with the caveat "unless the project is scheduled to occur outside of season restrictions." Page 3-188 also promises RTV surveys.

Response: BLM is required to survey for S&M species according to current regulations. Goshawk surveys are not required by BLM. However, goshawk is a Bureau Sensitive species. Surveys would be done only if the project were to occur during the nesting period in a stand with suitable habitat, to avoid a possible disturbance to nesting birds. Projects after the nesting season would not adversely affect goshawk nests. After the young fledge, goshawk can fly well and move away from a disturbance. Restoration projects in the understory do not remove suitable goshawk habitat and are expected to improve habitat conditions for goshawk (DEIS page 3-190). A seasonal restriction for projects within unsurveyed suitable habitat would protect any unknown nesting birds, if present. Surveys for GGO are required if the project is going to alter habitat. Old growth and late-successional forests are habitat for GGO. If a project would not alter habitat, for example an understory thinning, but could be a noise disturbance, a seasonal restriction would be in effect during the GGO nesting period. Surveys would not be required in salvage units. These are not late-successional/old growth forests.

Comment 387: Changes in species composition have been detected in burned forests that were logged (salvaged), reflecting effects of large woody debris removal on foraging and nesting habitat of cavity-nesting species. For example black-backed woodpecker and three-toed woodpecker have consistently shown negative responses to post-fire logging, with significantly more nests found in unlogged sites (Caton 1996, Heji and McFadazen 1998, Hitchcox 1996, Saab and Dudley 1998). Both woodpeckers are Special Status Species in the Medford District. (RMP 141).

Response: As stated in DEIS Appendix N, Table N-10, Special Status Species in the Butte Falls Resource Area, black backed and three-toed woodpeckers have not been found in the Elk Creek Watershed. Three-toed woodpeckers are closely associated with high elevation lodgepole pine forests. This habitat is not present in the Elk Creek area, and three-toed woodpeckers are highly unlikely to be present in the watershed. The closest black-backed woodpecker known site is near Crater Lake National Park. Bird surveys within the Elk Creek Watershed in 2003 inside the fire area (Burnett, personal communication) and outside the burned area were negative for both black-backed and three toed woodpeckers. Loss of habitat for cavity species was discussed in DEIS page 3-199. Additional information was added to cumulative effects discussion in the Final EIS. Salvage would not occur in 63 percent of the stand-replacement acres (DEIS Table 2-2, page 2-54). This would provide habitat for black-backed woodpeckers, if they were present. They have not been documented in the watershed to date.

Comment 388: As stated on page 3-199 of the DEIS "Snag and coarse wood levels would be below the LSRA and DecAID recommendations." The proposed green tree and salvage highgrade logging will harm the six USFWS (2002) Birds of

Conservation Concern found within the planning area: peregrine falcon, flammulated owl, rufous hummingbird, Lewis's woodpecker, white-headed woodpecker, and olive-sided flycatcher.

Response: The reference on page 3-199 was in error and was changed in the Final EIS. Snag and coarse wood levels do meet DecAID Wood Advisor recommendations. Analysis of snag retention levels in Appendix D, page D-29, DEIS shows that snag levels under Alternative G are within the DecAID recommendations in all units. The intensive research units with 6 snags per acre meet the lower level of 5-17 trees per acre recommended in DecAID. In the salvage harvest units, 8-12 snags per acre would be left. This information was changed in the FEIS Section 3.12, Wildlife, to reflect the analysis. Of the list provided on Table 8: BCR 5 (Northern Pacific Forest-U.S. Portions only), 6 species are present in southwestern Oregon (DEIS 3-201): peregrine falcon, flammulated owl, rufous hummingbird, Lewis' woodpecker, white-headed woodpecker, and olive-sided flycatcher. As stated in the special status species review, Appendix N, Lewis' woodpecker and white-headed woodpecker have not been documented in the Elk Creek Watershed. Personal communication with a local bird expert who has done surveys in the watershed indicates that he had never seen either species in the watershed. White-headed woodpecker and Lewis' woodpecker were not found during surveys in the watershed in 2003. Surveys of suitable cliffs within the fire area in summer 2003 did not locate any peregrine falcons (Harper, personal communication). This information was not available for the DEIS, but was added to the Final EIS. As stated in DEIS 3-203, birds that use pines, such as, flammulated owl, white-headed woodpecker, and Lewis' woodpecker, would benefit from pine restoration (DEIS 3-203). Also, thinning and projects that favor growth of flowering plants beneath the canopy would benefit hummingbirds (DEIS 3-203). Olive-sided flycatchers use forest edges (DEIS 3-202) and fly out to capture insects in openings. The proposed action would leave 87 percent of the fire-killed trees that could be used for perches by olive-sided flycatchers (Table S-3).

5.4.3.15 Spotted Owl

Comments 509 and 403: The survey results of 2003 did not look promising especially within the burn. It was interesting to note that only 1 survey was completed with the second survey resulting in mostly "no response". It would have been nice to have more completed surveys.

Response: Surveys were completed in 2003 (see Table N-3). Additional surveys will be done in 2004 by BLM, Boise, and OSU. A radio tracking study of owls within the fire has been initiated. Salvage acres have been reduced from the DEIS, and are displayed in Appendix N, Table N-4.

Comment 97: The BLM has completely failed to demonstrate how removing medium- and large-sized live trees and snags from moderate and severely burned areas would not harm the northern spotted owl and would actually aid in the "development of late-successional forest habitat conditions and increase resiliency to disturbance."

Response: No live trees would be removed within the burn area, except for logging feasibility, such as those needed to meet OSHA safety hazards. As long as residual legacy snags are retained, meeting DecAID Wood Advisor recommendations would minimally degrade the burned areas that have become marginally suitable for owls. The quoted section is a reference (DEIS page iv) to restoration projects such as thinning and FMZs that would take place outside the burn.

Comment 101: The DEIS acknowledges that salvage logging in the Preferred Alternative G will diminish late-successional habitat suitability in the short and long term, and admits that adverse impacts to the northern spotted owl will occur in the short term (DEIS page 3-187).

Response: The DEIS does not acknowledge salvage logging in the Preferred Alternative G would diminish late-successional habitat suitability. In Alternative G, salvage logging is proposed in stand-replacement units greater than 10 acres with less than 40% live canopy closure. These areas "are no longer considered mid or late-successional LSR habitat or suitable habitat" (DEIS page 3-179). The DEIS does addresses the impacts to NSO on page 3-187 within ¼ mile of identified owl activity centers where salvaging would occur. Impacts would only occur if owls, because of site tenacity or proximity, were to return to these burned stands. The design of the research proposal includes salvaging within ¼ mile of some activity centers predicted to have owls return. The FEIS updated the impacts based on the 2003 owl surveys. The completed USFWS consultation BO also acknowledges the potential for adverse affects of the research units near these sites.

Comment 146: On DEIS 3-187 the BLM states that if owls return to these sites, they would be impacted from removal of timber. The BLM goes on to state "the impact would be reduced by remaining nearby underburned suitable habitat." The BLM does not explain how it reached this conclusion and provides no scientific basis for this determination.

Response: The comment is valid. The statement has been removed from the Final EIS. The impact is not reduced due to nearby underburned suitable habitat.

Comment 154: As justification, the DEIS relies on faulty science and questionable logic. The DEIS states that, if owls have abandoned the site, there will be no impact in terms of habitat degradation. Id. at 3-180. However, such "no impact" determinations are based on nothing more than a prediction because no surveys have been conducted post-fire.

Response: Surveys were done in 2003 (see Wildlife Appendix N, Table N-3). Predictions were based on biologists 18 years of owl survey experience in the project area and from monitoring owls that are in other wildfire areas on the Medford District.

Comment 297: How the preferred alternative will manage spotted owl critical habitat to retain options for recovery is not presented in an accurate, clear, complete, and unbiased manner.

Response: Salvage would only occur in areas greater than 10 acres and with less than 40 percent canopy closure. Table 2-4 describes potential new forest stands at 15, 50 and 80 years after recovery from the fire. Table 2-5 describes potential stands after restoration treatments at 5 and 50 years in the future. These tables were added in response to public comments. The Preferred Alternative follows guidelines set forth in the DecAID Wood Advisor for snag and downed wood retention levels. Within a portion of the CHU, the wildfire removed most of the primary constituent elements of critical habitat, except for the snag and CWD component. Sufficient nesting, roosting, and foraging habitat remains in this CHU for it to continue to function as part of the CHU network. See the expanded discussion in the Cumulative Impacts section of Environmental Consequences, Section 3.12.3.1, which now includes references to the USFWS programmatic consultation Biological Opinion.

Comment 402: Page 2-58 indicates that 49 acres of such logging will be conducted within 1/4 mile of occupied NSO sites. The DEIS further indicates that you intend to log another 281 acres of large diameter snags within 1/2 mile of 8 occupied NSO sites. Does the BLM contend that such logging represents an effort "to locate non-conforming activities in land allocations where they will have the least effect upon the objectives of the standards and guidelines?" (DEIS 1-11)

Response: The comment ignores the paragraph prior to the quoted sentence. From DEIS page 1-11, "Some activities not otherwise consistent with objectives may be appropriate if: the research tests critical assumption of the NFP Standards and Guidelines: (or) will produce results important for habitat development…" The acreages affected have been reduced, and are shown in Appendix N, Table N-10.

Comment 457: Aggressive commercial thinning - the DEIS calls for logging 30-80 year old green stand down to 50% canopy closure within the LSR. Will this not cause NSOs to avoid the stands in the very time period in which prey-species are still recovering from the fire?

Response: Recent research (Meiman, et al, 2002 in press) asserts, that yes, owls will make less use of recently thinned stands. Another recent paper (Irwin 2003, 16 and 17) asserts that thinning benefits owl foraging.

Comment 510: On pg 3-172 it states, that "Spotted owls are mobile enough that dispersal to adjacent LSRs would not have been seriously inhibited by the wildfire or the subsequent salvaging on non-federal lands". This could be true for adults but juveniles can not fly. No management should take place in the owl activity centers for a few years until survival and nesting is confirmed.

Response: Juvenile owls were capable of making short flights by the time the fire began spreading (July 24), but many would not have been able to evade the fire. Juvenile owls do not disperse from the natal area until September or October, but by then they are capable of making extended movements (over 10 miles in several weeks). Survival and nesting was monitored in 2003, and will be monitored in 2004. Seasonal restrictions to be imposed are listed in the PDFs (Section 2.3.1.3).

Comment 511: Fire breaks could be especially damaging to this species because they contribute to the edge effect of the forest where competitors reside. Give special consideration to dispersal habitat.

Response: In the ridgeline FMZs outside the fire, few trees over 8" DBH would be cut. The "edge" created would be minimally different from adjacent suitable owl habitat (versus an edge with a road or plantation). A recent paper (Franklin, et al. 2000, 579-580) implies that owl foraging benefits from the edge component. Ample dispersal habitat is being maintained adjacent to the burn.

Comments 66 and 67: Boise's most productive owl sites are at high to moderate risk from uncharacteristic wildfire. 2. Recent uncharacteristic wildfires in fire-prone owl habitat has reduced total owl habitat. 3. Spotted owl centers are being actively managed with silvicultural treatments without compromising the ability of these sites to attract and produce young. 4. The sustainability of spotted owls and their habitats in fire-prone forests appears doubtful without active management to reduce risks of uncharacteristic wildfires.

Response: We agree with these statements (see Section 3.12.3.1). In the commenter's letter, "owl center" refers to active management within the provincial home range radius of 1.2 miles (Tim Burnett, personal communication 20 Oct 2003), not within a 100-acre core. Yes, most active owl sites have had active management in the past decade within that 1.2-mile radius, but not within the quarter-mile radius.

Comment 40: If the goals of Late Successional Reserves is to create habitat for species like the Northern Spotted Owl, the alternative chosen from the final EIS should display the path to quickest recovery, given these kinds of losses. Currently the summary of Alternative G does not clearly show that.

Response: The return of severely burned stands to LSR character will be hastened by planting, thinning, fertilization, and maintenance of legacy snags and CWD. The probability of excluding stand-replacement fire will be increased by establishment and maintenance of FMZs. A comparison by alternatives is displayed in Appendix K, and in the Restoration text of Section 3.12.3.1 Environmental Consequences section on owls. Tables 2-4 and 2-5 have been added to illustrate forest conditions at different points in time.

Comment 406: Is the BLM contending that 1,051 acres of clearcut logging, and hundreds of acres of ground based yarding (and 911 acres of green-tree late-successional logging) within the LSR and CHU is not adverse modification of critical habitat? If so, will the BLM please describe what a logging proposal would look like that it believes would adversely modify critical habitat? Or does the BLM contend that it is impossible for the logging action agency to ever actually adversely modify critical habitat?

Response: The acreages quoted in the comment refer to 811 acres of pine release (thinning) and 1,051 acres of salvage of fire-killed trees (Table 2-1, DEIS pages 2-42 and 2-45). The critical habitat analysis has been expanded in the Environmental Consequences (3.12.3.1) section on Cumulative Impacts (as per comments number 168, 260 and 297). An example of a proposal that would adversely modify critical habitat is Alternative E. Areas proposed for area salvage are not late-successional old-growth forest. Acres proposed for pine release and salvaging have been revised in the FEIS.

Comment 91: It is likely that removing most of the habitat for along ridge tops is not beneficial for the spotted owl, especially since stand-replacement areas can include moderately burned habitat that could be suitable owl habitat.

Response: Only material 8" DBH and less will be removed in FMZs outside the burn. The FMZs will remain owl dispersal habitat, and some will remain foraging habitat. Within the burn, no green trees over 8" DBH are to be marked for removal. The long-term benefit is to maintain more LSOG habitat by limiting spread of stand-replacement fire.

Comment 92: Thus, an extensive network of fuel management zones created via salvage logging of large trees and snags in potential spotted owl habitat may be unwarranted.

Response: The network of ridgeline FMZs are intended to increase our ability to limit the size of future stand-replacement wildfires. Less than a third of ridgelines would be treated. Large green trees are not to be cut.

5.4.3.16 Grazing

Comments 272, 504, and 374: In the short-term, grazing must be eliminated to allow recovery of plants, soil, and to protect water quality. In the long term, grazing must be eliminated of the agency is sincere about re-establishing natural fire regimes which depend on natural fuel profiles, which are seriously adversely affected by livestock grazing.

Response: As stated in Section 3.13, grazing has been deferred for two years, following which discussions between BLM and Boise will take place to determine when to reauthorize livestock grazing. Two years of grazing deferment will allow grasses, forbs, and shrubs to become reestablished. After field examinations, the decision will be reevaluated using site-specific conditions.

Comment 455: With this in mind, we have many questions and concerns regarding the continued grazing referred to in the DEIS. The Timbered Rock DEIS admits that logging and other post-fire activities would change the movement of the cattle grazing in the fire area. Given that roadside and upland activities are the focus of the project, one is left with the conclusion that cows will be more concentrated in the riparian areas as a result. How would increased grazing in riparian areas lead to an attainment of ACS objectives?

Response: Post-fire activity may influence livestock movement, as stated in the EIS, but it does not assume all livestock will move towards riparian areas. They will simply move away from the activity (logging, sight-seeing, etc), and maybe by only a few yards.

5.4.3.17 Roads

Comments 319 and 343: Since the fire, road densities have been increased in the Elk Creek Tier 1 Key watershed. A likely scenario is that many roads on public lands will fail into the stream before they are decommissioned due to at least a 3 year delay to allow logging.

Response: The potential for mass wasting along roads is summarized in Section 3.3.3.3, Mass Wasting – Roads. This section summarizes the potential effect of delayed or abandoned road restoration efforts in the watershed, as well as the effects of proposed restoration on mass wasting along roads.

The proposed road restoration projects (52.3 miles of road renovation, 35 miles of road decommissioning, 13.3 miles of road decommissioning in riparian areas, 24.4 miles of road improvements, and upgrades of 11 high-risk stream crossings) will be prioritized during the specific planning and implementation phases of the road restoration efforts. Restoration priority would be given to road segments along mid-slope, in steep terrain (over 65 percent), and within the high and moderate burn severity areas. The length of these road segments was estimated to be between 40 and 60 miles (see Section 3.3.3.3, Mass Wasting – Roads). The proposed restoration of the 11 high-risk road fills was based on slope stability analysis and field reconnaissance of road fills (stream-crossings) in the moderate and high burn severity areas.

Comment 321: The DEIS failed to adequately disclose the impacts from existing roads, reconstructed roads during fire suppression, and newly constructed roads by Boise Cascade to salvage timber within the fire perimeter.

Response: The effects of fire on mass wasting along existing roads are assessed in Section 3.3.3.3, Mass Wasting – Roads, for all alternatives, including the No Action Alternative. The information about the post-fire road building (4 miles in 2002, and 3 miles in 2003) was submitted by the private landowners. The OFPA regulates the road building and maintenance on private lands. These rules apply to all management activities in the forest, and were developed to protect forest resources, including water quality standards. The Division 625, Forest Roads, rules specifically include, among others: Road Location, Road Design, Road Construction, Stream Protection, and Road Maintenance (http://www.odf.state.or.us).

Comment 119: Additionally, the DEIS does not adequately consider the environmental strains on wildlife, soil, and streams due to road building.

Response: Environmental impacts of roads on wildlife were discussed in Sections 3.12.3.1 and 3.12.4.3, Wildlife. No new permanent roads would be constructed. Temporary road construction would have negligible impact to wildlife. Fully decommissioning roads would return four acres of land to vegetation for each mile of road (see Section 3.3.3.4, Soil). This was also addressed in Section 3.4.3.1, Hydrology, "Approximately 4,300 feet (about 0.9 miles) of temporary road would be built under this alternative. The roads would be on the ridgetop and not near streams or in Riparian Reserves. The roads would be decommissioned after use by ripping the road surface, seeding, and mulching. This action would add to the short-term road density, but would be negligible at the subwatershed and watershed scale (see Appendix I). These roads would not deliver sediment to streams based on location and because the roads would be temporary."

Comment 435: The BLM is relying on road density information that it knows is inaccurate. Page 3-44 of the DEIS acknowledges that "new roads built for private access after the fire are not in GIS" and hence not included in road density calculations. Similarly, the number of jeep roads in the watershed is not known by the BLM. (DEIS 3-53)

Response: The EIS used the most current information available and used this statement to show that there was an increase in roads due to the fire. The amount added for the fire or for salvage on private land would not considerably change the road density at a watershed or subwatershed scale. Roads on public lands have been field reviewed and evaluated, including roads

that may be considered jeep roads. The amount of road decommissioning and improvements planned for roads on public land would reduce the negative effects and move road density toward the amount recommended in the LSRA and WA.

Comment 337: The DEIS (p. 3-95) also failed to adequately disclose watershed level impacts [i.e. fish declines] from inadequate riparian buffers and high erosion risk roads on private lands.

Response: Page 3-95 is a map relating to plant series. The BLM assumed the commenter was referring to page 3-85. Watershed level impacts are discussed throughout Section 3.5, Fisheries. This section discusses Riparian Reserves and road erosion and the efforts to minimize adverse effects on Federal and private lands. Roads on private lands were built to meet standards set by the OFPA and should meet water quality standards set by the DEQ.

5.4.3.18 Cultural

No comments were received.

5.4.3.19 Public Safety

Comment 52: The DEIS overly emphasizes short-term risk, and does not adequately describe the trade-offs if more trees were harvested. Also, there is no discussion about potential hazard reduction that could be applied, other than the discussion about roads. Many activities during harvest operations, as well as post harvest, can be applied to minimize hazard to whatever risks are identified. However, none of the professionals address what could be done, only what cannot be done. These kinds of activities may add cost but are unlikely to be a significant detriment to the overall project.

Response: Section 3.16.3.2 of the EIS addresses the trade-offs of different tree harvest levels as proposed by Alternatives A through G. Proposed area salvage (non-research units) in Alternative G has been modified in the FEIS from evenly distributing snags across salvage units to concentrating snags on unharvested portions of units and removing all dead merchantable snags on salvage portion of units. This would provide reduced risk during harvest operations in the salvaged areas. The identified PDFs are designed to reduce the risk to resources in implementation of the proposed harvest and restoration activities on the ground.

Comment 276: This project tries to excuse removal of large snags on safety grounds but they failed to consider a simple alternative, that its, to restrict workers (and others) from the hazard zone around hazard trees.

Response: This is true. Restriction of workers from these lands was not considered a feasible alternative because it would have included restricting the public from using all these public lands and restricted private landowners from accessing their land. Section 3.16.3 of the EIS recognizes and references OSHA requirements for hazard mitigation. Section 3.16.3.2 identifies the need when working around known hazard trees, to cut them or avoid activity within the area of risk.

5.4.3.20 Economics

Comment 306: In addition, we urge you to address the findings of the report recently released by EcoNW regarding the economics of post-fire logging.

Response: Review of this document identifies several points to consider but does not present any new information that has not already been recognized within the EIS. Many of the questions or issues presented are broad in scope, difficult to define, and often based on "if … then" statements to occurrences or scenarios outside the scope of the document. Section 3.17 recognizes the difficulty in predicting economic values due to economic variables and unforeseen factors. As a result, Section 3.17.1.1 states, "…estimates of economic values are assumed to be static and are intended for a relative comparison of implementing various Alternatives." Section 3.17 also recognizes the possibility of certain harvest areas to incur higher costs than revenue. Approximately eight potential harvest units, considered in the DEIS under Alternative G, have been dropped from consideration in the FEIS. Deferral of harvest is due to high levels of decay and associated logging costs making these areas uneconomical for harvest. A criticism of the EcoNW report is that it claims high economic costs for management and presents social inequalities related to salvage logging only. The study fails to recognize that restoration activities have similar attributes. Alternatives in the EIS are intended to provide for project objectives. Management costs and the risk of economic inequality (as defined in the study) are not necessarily an over-riding reason to forego attainment of management objectives.

Comment 445: Please see Attachment 2: February 15, 2002 letter to RIEC from a number of prominent economists (who specialize in natural-resource and economic-development issues in the Pacific Northwest) recommending an end to old growth timber sales. They conclude that there is "insufficient economic justification to warrant further logging of the region's late-successional and old-growth forests."

Response: Review of Attachment 2 provides talking points to recommend protection of late-successional and old-growth forests based on both quantifiable and non-quantifiable economic values. Arguments are also presented on the actual need for supply of timber from Federal lands to the private sector. In many respects this is opinion on what is the preferred economic use of public lands. Regardless of opinion, salvage is an element provided for by the LSRA as an appropriate action. Section 3.17.1.1 acknowledges non-market values are present and refers to other sections of the document to disclose the effects on non-market values. With respect to consideration in the attachment on the demand for Federal timber, the market will ultimately determine the result. Assuming there is no demand, there will be no buyers for any timber offering made. Nevertheless, proposed projects analyzed in the EIS do not suggest harvesting "old growth forest," rather proposals include salvaging of fire-killed trees and accelerating development of late-successional forest conditions.

Comment 170: The BLM must remember that they already clearcut 19,000 acres of ancient forest in the Elk Creek watershed before it was designated as an LSR (EIS p 3-221).

Response: The accurate reference on this page is "From 1945 to 1994, approximately 19,000 acres of harvest activity occurred on Federally-administered lands within the Elk Creek Watershed (USDA and USDI 1996, II-59)." This is combined harvest activities on BLM and USFS administered lands. The commenter equates "past harvest activities" to clearcut. Past harvest activities include many different types of treatment including clearcutting, sanitation salvage, and thinning. The BLM clearcut approximately 2,500 acres between 1945 and 1994. Refer to the above reference for summary of harvest activities on Federal lands.

Comment 54: If the BLM intends to salvage, then it needs to be expedited. Salvaging timber at Timbered Rock will be difficult in 2004 and nearly impossible in later years. We have found after two seasons that the wood strength and quality has significantly declined. Within one year, checking in the smaller logs (less than 10 inches) has made them difficult to process. Costs and values need to be clearly understood if salvage sales are to be sold.

Response: Reduction in wood quantity, value, and feasibility for harvest of fire-killed trees, as a result of decay, are addressed in Sections 3.17.2.1 and 3.17.3.1 of the EIS. Section 3.17.3.1 estimates harvest to occur in 2004. Given NEPA requirements associated with preparing an EIS, this would be the earliest harvest activity could occur (see 40 CFR 1500). However, it is anticipated this EIS can be used in the future to expedite salvage logging, as appropriate (see Section 1.3.1, Objective 9).

Comment 347: The DEIS estimates the number of fire-killed trees and the numbers proposed for salvage logging but does not estimate the size classes of trees proposed for logging. Please disclose in the Final EIS and estimated number of the trees proposed for logging that are 18-32 inches diameter and trees greater than 32 inches diameter.

Response: Figure 2.3-2 has been added to show the distribution of snags by diameters which would remain and be removed for each alternative.

Comment 444: The DEIS also does not indicate whether the timber from the project will be milled in Jackson County or exported to other locales or whether the loggers for the project will be hired from the local communities (nor can it do so until after the project has been awarded). Therefore, how can the BLM claim that jobs that benefit the local communities will be created from this project?

Response: Section 3.17.1.1 recognizes effects to the economy of southwest Oregon from both restoration and timber harvest activity. Throughout Section 3.17, references are made to the regional economy. The distribution of effects is stated to be relatively higher at the local level (county or region) with relative effect at the broader scale less evident (state or national). Effects at the local level are a simple function of the project location. Although actual distribution of effects is unknown until restoration and harvest contracts are awarded, the BLM assumes that transportation costs and other factors would give local and regional firms an advantage in procuring contracts. Making the assumption that no local economic benefits would occur, however, would be inappropriate.

Comment 71: The cost estimates provided just appear in the document and there isn't any information or references backing up the numbers. No cost/revenue estimate was provided in the summary.

Response: Detailed cost estimates and sources for the values used are provided in the Administrative Record. A cost/revenue estimate by alternative is not provided. 40 CFR 1502.23 states that "…the weighing of merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations…" Section 3.17.3.1 and 3.17.3.2 identifies that economic recovery of fire-killed trees provides monetary gains. Restoration activities, however, are an investment into resource values with qualitative benefits. Given this, economic values are displayed as a net value for only those values which are definable.

5.4.3.21 Other Resources

No comments were received.

5.4.4 Appendices

Comment 74: Many times the DecAID Wood Advisor (a program used to develop methods for managing snags, dead trees, and downed wood in forests) was mentioned, but without any sort of reference. I had to go and search for information on it in the bibliography. On page 3-108, the writers state, "The amounts of coarse woody debris remaining on-site in these areas exceed the amounts suggested by the LSRA and DecAID Wood Advisor as typical levels of coarse woody debris in these forest types (BLM 2003)." Within this statement there is no reference to what those values might be or how to find them in the attached appendix.

Response: Table D-2 in Appendix D in the DEIS provides a stand-by-stand comparison of existing snag and CWD levels with LSRA recommended "typical" levels. Table D-3 has been added to the FEIS and provides a stand-by-stand comparison of existing snag and CWD levels with the DecAID recommended "typical" levels used in Alternative D. The quote is from the effects of Alternative F. No salvage would occur in these stands in Alternative F so all existing snags and CWD would remain.

Comment 247: The EIS slope stability analysis was not site specific or unit specific (H-20). Alternative G would log trees on unstable and potentially unstable slopes.

Response: Based on slope stability and GIS analyses, the DEIS identified a total of 200-400 acres (92 acres on BLM land), i.e. less than 0.5 percent of the Elk Creek Watershed, to be at elevated risk of imminent mass wasting (see Section 3.3.3.1, Mass Wasting – Uplands, Map 3-2, and Appendix H-Slope Stability Analysis). Of the 92 high-risk acres, approximately 7 acres have a realistic potential for delivery of CWD to the streams via landslides, i.e. they are within 400 feet of streams. Approximately four of these acres would be salvaged in Alternative G. The DEIS proposes salvage harvest of dead trees within the fire perimeter; no live trees are proposed for harvest. This salvage action, or no action (no salvage), will have effectively the same effects on the incidence of mass wasting along the uplands, primarily due to reduced evapotranspiration (ET) and the loss of root strength, as a result of the fire (see Sections 3.3.2.1 and 3.3.3.1, Mass Wasting – Uplands).

5.4.5 Miscellaneous

Comment 517: A more complete glossary or acronyms.

Response: Additional words that specialist thought would clarify the document were added to the glossary in the Final EIS. The list of acronyms is in the front of the document as well as throughout the text. When an acronym is first used in the document it is spelled out then shown in its acronym form.

Comment 518: A complete list of maps with page numbers.

Response: A list of tables, figures, and maps with page location is included in the Final EIS.

Comment 519: All maps of alternatives should have had unit umbers on them with corresponding unit numbers printed in appendix D. Only Alternative E had this information. I was given a soils map with unit numbers when I asked for it.

Response: Appendix D included tables for Alternative C, E, and F. The Final EIS will include these tables for Alternative D and G. The maps were designed with the potential areas to be treated, as well as the logging systems associated with the treated acres. In the development of the alternative maps, it was determined that for clarity, unit numbers would not be displayed on the maps. This is consistent with previous environmental analysis completed in the Medford District.

Comment 520: The present condition of the land as well as the desired future condition would have been helpful to me for each restoration project proposal as well as resulting canopy closures for all completed projects.

Response: Chapter Three, Affected Environment and Environmental Consequences included the description of the land pre-fire and post-fire by resources. Environmental consequences were discussed in each resource section as it relates to each alternative. Tables 2-4 and 2-5 have been added to the Final EIS as a comparison of trends and consequences for the Preferred Alternative. The desired future condition for BLM-administered lands is shown in Chapter 5 of the LSRA, which has been included in Appendix B of the FEIS. The desired future condition associated with restoration projects is shown in Chapter 2 as well as Appendix E.

Comment 521: A more complete index.

Response: Additional words were added to the index to help the reader.

5.5 Comment Letters

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

OCT 17 2003

Reply To
Attn Of: ECO-088

Re: 03-006-BLM

John Bergin, Co-Project Team Leader
Bureau of Land Management
Medford District Office
3040 Biddle Road
Medford, Oregon 97504

Dear Mr. Bergin:

The U.S. Environmental Protection Agency (EPA) has reviewed the **Timbered Rock Fire Salvage and Elk Creek Watershed Restoration Draft Environmental Impact Statement** (DEIS) (CEQ #030369) pursuant to our responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA) as amended. Section 309, independent of NEPA, directs EPA to review and comment in writing on the environmental impacts associated with all major federal actions.

The proposed project is located within the Elk Creek Watershed in the Butte Falls Resource Area of the Medford Bureau of Land Management (BLM), approximately 20 miles east of Medford, Oregon. Elk Creek is a tributary of the Rogue River. The Elk Creek Watershed is in the range of the northern spotted owl and, as such, is designated as a Tier 1, Key Watershed through the Northwest Forest Plan (NFP). The Timbered Rock wildfire of 2002, which occurred entirely within the Elk Creek Watershed, burned with varying degrees of intensity over 27,000 acres of federal, private and industrial forest lands. Close to half (approximately 12,000 acres) of the total affected acres within the fire perimeter are BLM managed lands.

The DEIS and its proposed activities address only those lands (both inside and outside the Timber Rock Fire perimeter) in the Elk Creek Watershed that are managed by BLM. The DEIS proposes four types of activities, especially within the wildfire perimeter:

(1) Restoration activities located throughout Elk Creek watershed to enhance Late-Successional Reserve (LSR) characteristics.
(2) Salvage activities to recover the economic value of trees killed as a result of the Timber Rock Fire.
(3) Post-fire logging salvage research as a component of its preferred alternative.
(4) Establishment of a fire management zone on a portions of the Elk Creek Watershed. boundary.

These actions are combined in various ways to create six action alternatives. There is also a No-Action Alternative (Alternative A). Alternative B contains restoration without salvage or salvage research while the Alternative G (Preferred Alternative) contains restoration, salvage, and salvage research. Alternatives C, D, E, and F contain various levels of salvage and restoration but no research. Of the Action Alternatives, Alternative E proposes the greatest level of salvage with the most extensive restoration while alternatives C and D propose salvage prescriptions consistent with the Late Serial Reserve Assessment combined with moderate restoration. Alternative F proposes salvage operations based on the 1995 "Beschta" report, with restoration only within the fire perimeter.

The Preferred Alternative contains restoration and enhancements of natural resources that would have beneficial effects for affected species and their habitat. Of note are proposed actions to eliminate grazing, the removal of some tributary irrigation withdrawals, the improvement and obliteration of roads and providing management to oak meadowlands.

While we support the long-term goals and objectives of the Preferred Alternative, we do have environmental concerns. The DEIS is limited in describing the cumulative environmental effects , particularly on water quality, of its proposed actions combined with the the salvage logging activites on 6,000 acres of adjacent private and industrial forests in the affected wildfire zone. The Draft EIS is not clear on how restoration projects will be funded or prioritized. Finally, the DEIS does not explain why the research in Alternative G proposes salvage logging cut prescriptions that are inconsistent with the Northwest Forest Plan in Late Successional and and riparian reserves.

Due to our stated concerns, we have assigned the document rating of EC-2 (Environmental Concerns - Insufficient Information). This rating and a summary of our comments will be published in the *Federal Register*. A copy of the rating system used in conducting our review is enclosed for your reference. Our concerns and recommendations are highlighted below and in detail in the enclosed attachment.

If you have any questions or need additional information regarding these comments, please feel free to contact me at (206) 553-6911, Tom Connor at (206) 553-4423 or Alan Henning at (541) 686-7838.

Sincerely,

Judith Leckrone Lee, Manager
Geographic Unit

Enclosures

cc: Dan Oplaski, Oregon Operations Office Director

EPA Detailed Comments for the
Timber Rock Fire Salvage and Elk Creek Watershed Restoration
Draft Environmental Impact Statement (DEIS)

Water Quality

303(d) Listed Streams and Total Maximum Daily Load (TMDL)

In 2002, the Oregon Department of Environmental Quality included several waters in the Elk Creek Watershed on its Clean Water Act (CWA) Section 303(d) list as not meeting the State of Oregon's temperature water quality criterion. These listings were based on pre-fire water quality data. Although causes of temperature exceedances may be natural, 303(d) listings are not based on natural exceedances to the standards. Land management activities, such as logging and road maintenance and construction, contribute to water quality standard violations by adding sediment to the waters, raising stream temperatures, reducing the riparian shading and/or simplifying stream structure.

The DEIS identifies three streams within the fire perimeter that are 303(d) listed for temperature impairment, but may have overlooked a fourth stream, Flat Creek. The Flat Creek mainstem traverses private and industrial forests, while many of its tributaries originate on public land. Over 39% of the Flat Creek drainage was burned at high or moderate severity which is the greatest percent of land impacted at those severity levels of all the watersheds inside the fire perimeter. Consequently, Flat Creek drainage has been or will likely be intensively salvaged. Additionally, the Flat Creek and the Middle Creek drainages seem to be where the majority of the research units targeted with 70% or 100% cut prescriptions are located. The subsequent impacts on water temperature from salvage and/or research on federal and non-federal lands in these drainages should be fully discussed in the Final Environmental Impact Statement (FEIS).

The Oregon Department of Environmental Quality (DEQ) anticipates completing the Upper Rogue Basin temperature TMDL in 2004. If a TMDL has not been established for those water bodies already on the 303(d) list, Oregon water quality standards require that proposed actions demonstrate that there will be no measurable surface water temperature increases resulting from anthropogenic activities in a basin where salmonid fisheries is a designated beneficial use and in which surface water temperature exceeds 64°F. Oregon Water Quality temperature criteria specify a maximum water temperature of 64°F except for the period of time from salmonid spawning until their fry emerge when water temperatures should not exceed 55°F. These standards were developed to support the aquatic species present in Oregon waters.

The DEIS indicates that the preferred Alternative G would have the greatest potential to directly affect stream temperatures, especially on these 14 acres of Riparian Reserves that are targeted for a research salvage cut prescription of 100% with 6/snags/acre. This is significant if the 14 acres of riparian reserve are adjacent to 303(d) waters. The FEIS must demonstrate that

anthropogenic actions proposed in the Action Alternatives will not result in further temperature impairment to 303(d) waters. Furthermore, where temperature increases are projected, generally for actions that present the greatest risk of temperature increases such as actions proposed for the research units in Riparian Reserves, other Action Alternatives should be considered.

Antidegradation

Antidegradation provisions of the Oregon's water quality standards apply to those water bodies in the project area where water quality standards are currently being met. The purpose of the antidegradation provisions is to prevent the deterioration of existing levels of good water quality. This CWA provision prohibits degrading the water quality unless an analysis shows that important economic and social development necessitates degrading water quality. The FEIS should explain how the antidegradation provisions of the State of Oregon's water quality standards would be met within each Alternative.

Indirect and Cumulative Impacts

The FEIS should assess the indirect and cumulative impacts on federal lands from proposed actions on federal lands and associated actions on adjacent non-federal lands within the project area to fully disclose the total impacts of any of the DEIS's alternatives. Under National Environmental Policy Act (NEPA), the EIS must disclose indirect and cumulative impacts of proposed actions. Under 40 CFR 1508.8 (b), indirect effects are caused by the action but occur later in time or are further removed in distance, but must be reasonably foreseeable. Under 40 CFR1508.7, cumulative effects are those that result from incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes such actions.

The Elk Creek Watershed is blocked in a checker-board ownership pattern of private, industrial and federal lands. In 2002, immediately as the Timbered Rock wildfire was subsiding, salvage operations began on the industrial forests within the project area. These same owners have initiated plans, that by 2006, approximately 6,000 acres of private and industrial forests will have been salvaged. Although the DEIS discusses cumulative impacts within the scope of proposed actions on federal forest lands, there is little assessment or adequate discussion of the combined indirect and cumulative impacts from the proposed alternatives and salvage operations occurring on adjacent non-federal lands.

The importance of including effects of salvage on non-federal lands in the DEIS's cumulative affects assessment is heightened in light of a recent Oregon Department of Forestry and DEQ's 2002 report, *Oregon Department of Forestry and Department of Environmental Quality Sufficiency Analysis: A Statewide Evaluation of FPA Effectiveness in Protecting Water Quality*. This study concludes that even with Oregon Forest Practices and Best Management Practices (BMPs), there are temperature water quality impacts due to forest management

activities. Assuming this conclusion was made in the context of non-salvage operations, adverse temperature impacts that could occur from salvage operations on adjacent non-federal lands, and should be analyzed, disclosed and considered along with the water quality impacts from proposed salvage actions on federal lands when selecting a preferred course of action.

Restoration Funding

The DEIS description of the impacts of the various Alternatives incorporates each alternative's proposed salvage components (i.e., roadside hazard, salvage in Late Successional Reserves, research salvage) coupled with that alternative's specific restoration actions. Salvage is targeted to begin as early as 2004. Implementing the associated restoration actions, however, is almost entirely dependent on funding which currently is unsecured. If salvage is initiated as projected but the associated restoration actions are limited, delayed or not implemented because of weak funding levels or lack of funding allocations, the described impacts have the potential to be much greater than described in the DEIS.

The FEIS should ascertain the impacts of each alternative in terms of proposed salvage and the restoration actions which would be fully funded and would actually be implemented. The FEIS should also provide a prioritized list of funded restoration projects to be implemented in each alternative

Salvage Research

The Preferred Alternative (Alternative G) includes a salvage logging research component targeting 16 units of 30 acres or more. The DEIS indicates that approximately 328 acres within the fire perimeter will be salvaged at varying intensities (30%, 70% and 100%) to evaluate the influences of salvaging and salvage intensity on habitat quality and wildlife species. The proposed research will occur within the high intensity burned LSRs of which 14 acres are in riparian reserves. EPA has the following concerns with Alternative G's research component.

The DEIS (Appendix G) indicate that because of a lack of relevant salvage-related data on habitat and wildlife, there is a need for salvage logging research to examine the influences of the different levels of salvage logging on birds and wildlife. The proposed research suggests establishing some of the research units with cut prescriptions of 70% and 100% of all trees, both killed and green. The proposed research cut prescriptions of 70% and 100% are not consistent with the LSR Standard and Guidelines (or an accepted equivalent) for snags and course woody debris. In addition, the 100% proposed cut prescription for the fourteen acres of riparian reserves is not consistent with the LSR Standard and Guides for Riparian Reserves. If research data is absent or limited for salvage logging prescriptions, then it would seen appropriate to target research on prescription cuts that are consistent with the Northwest Forest Plan (NFP), rather than create and study simulated salvage logging cut prescriptions that are not consistent with NFP.

The FEIS should explain, in the absence of adequate research data relative to salvage cut prescriptions consistent with the NFP, the value of simulating cut prescriptions not consistent with Late Successional Reserves (LSR) and Riparian Reserves Standards and Guidelines consistent with NFP.

It is EPA's understanding that implementing the proposed cut prescriptions for the research units will be accomplished within the scope of the salvage process, a process not dependent on obtaining funding outside the salvage operation. However, the DEIS is not clear on whether or not the funding for the actual research is available. If the funding is not available to conduct the research, it is possible that the cut prescriptions for research will be applied through salvage without the subsequent funding for research. Consequently, salvage research cut prescriptions which are not consistent with the NFP would be implemented without the accompanying study. Therefore, proposed research cut prescriptions should not be implemented until funding to complete the bird and wildlife research is secured.

Endangered Species Act (ESA)

Increases in water temperature, decreases in dissolved oxygen, or elevation of sediment levels could have significant impacts on the fish and other biota that inhabit water bodies within the project area. ESA determinations are important for all reviewers, especially in light of the checker-board ownership pattern throughout the Elk Creek watershed.

We recommend that the FEIS provide a detailed description of BLM's determination of compliance with ESA, including the results of any consultations with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanographic and Atmospheric Administration (NOAA) Fisheries.

Consultation with Native American Tribes

As the proposed project may have impacts on Tribes, the FEIS should be developed in consultation with all affected tribal governments, consistent with Executive Order (EO) 13175 (*Consultation and Coordination with Indian Tribal Governments).* EO 13175 states that the U.S. government will continue "to work with Indian tribes on a government-to-government basis to address issues concerning Indian tribal self-government, trust resources, and Indian tribal treaty and other rights." Documentation of these consultations should be included in the FEIS.

Invasive Species

The FEIS should improve its disclosure regarding the proposed project's compliance with the Executive Order (EO 13112) on invasive species. Nationally, the establishment of invasive nuisance species has rapidly become an issue of extreme environmental and economic significance and invasive species can opportunistically spread into burned areas (Harrod, 1994). After a land disturbance (e.g., timber salvage and wildfires) event, an area is more susceptible to

invasion. In addition, when salvage comes on top of a fire disturbance, impacts can potentially be worse than either event alone.

According to the Executive Order, each federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law:

- identify such action;
- use relevant programs and authorities to:
  - a) prevent the introduction of invasive species;
  - b) detect and respond rapidly to and control populations of such species in a cost– effective and environmentally sound manner;
  - d) monitor invasive species populations accurately and reliably; and
  - e) provide for restoration of native species and habitat conditions in ecosystems that have been invaded;
- not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species.

Consequently, EPA recommends the following changes to the EIS.

1) The FEIS should provide specifics of the Medford Weed Management Plan established by BLM. The DEIS indicates it will follow the Medford Weed Management Plan, but does not adequately identify which actions BLM will prevent or minimize the spread of invasive species.

2) The FEIS should identify and disclose vectors (e.g., logging roads, helicopter downdrafts) for invasive species and identify mitigation to prevent or minimize the spread of invasive species: For example:

a) Clean vehicles coming from infested areas.

b) Conduct activities in the least intrusive manner possible to minimize soil disturbance.

c) Carefully check seed sources for the restoration, most sources contain a small percentage of unwanted weed species

3) The FEIS should provide a discussion of the condition of invasive species throughout the project area, including all federal, state, private and industrial lands.

4) The FEIS should describe proposed monitoring of invasive species, with appropriate treatment as needed. For example, restoration areas and roadsides should be monitored and assessed for invasive species for several years following the salvage and restoration, so that any populations of invasive species can be identified early and dealt with effectively while small.

5) The FEIS should discuss post salvage operation plans to minimize invasive species. Proposed

prescriptions for an area after salvage will also affect the extent to which invasive species may spread. The DEIS is not clear regarding what the plans are for land use after salvage is complete. Will the natural forest be allowed to reestablish? Will grazing be allowed? Grazing is recognized as an agent of change in composition structure and development of plant communities, and if untimely re-admittance of grazing after salvage operations are implemented, this action would not only impede/prevent reestablishment of the natural forested community, but also would further facilitate invasive species establishment.

Management Direction Should Reflect Changes on the Land

The DEIS identifies the South Cascades Late-Successional Reserve Assessment and the Elk Creek Watershed Analysis as primary sources for developing management directions for the project area. For the FEIS, we recommend that the South Cascades Late-Successional Reserve Assessment and the Elk Creek Watershed Analysis be updated and revised to accurately reflect current site condition changes due to the Timbered Rock wildfire. Updated management tools are important for identifying and implementing effective land management prescriptions.

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000001

Rita Grauer
<reetrite@budget.net>
08/13/2003 01:59 PM

To: <or110treis@or.blm.gov>
cc:
Subject: PROTECT THE ELK CREEK LSR FROM SALVAGE LOGGING

We are extremely concerned about the recent precedent-setting action taken by the Butte Falls Resource Area of the Medford District BLM proposing salvage logging within the Elk Creek Late-Successional Reserve burned by the Timbered Rock fire, and we urge you to protect this treasured natural resource.

According to the BLM's Draft Environmental Impact Statement (DEIS), Preferred Alternative "G" calls for logging over 24 million board feet (over 12,000 fully loaded logging trucks!) from the Elk Creek LSR, by some of the most damaging logging methods possible -- including 1,888 acres of ground-based tractor yarding and 1,051 acres of Bull-line yarding -- even though this area is designated LSR under the Northwest Forest Plan (NFP), 18 Northern Spotted Owl activity centers and is a Tier-1 Key Watershed designed to protect at-risk chinook, coho and steelhead.

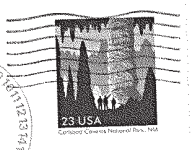
The Oregon Department of Forestry Damage Appraisal Report of the fire concluded that older forests over 200 years old, such as the Elk Creek LSR, only burned at 10 % mortality while tree farms under 35 years of age burned at 100% mortality.

So please, revise your decision to make Alternative G the preferred alternative and PROTECT THE ELK CREEK LSR FROM SALVAGE LOGGING!

Sincerely,
James & Rita Grauer
Williams OR 97544

000002

Jo Bigman
1327 Birdseye Cir.
Gold Hill, OR 97504



BLM
Comments, Timbered Rock DEIS
3040 Biddle Road
Medford, OR 97504

OF the 27,000 acres burned by the Timbered Rock fire, BLM has 11774 acres, Private Industrial forest lands have 11140 and 486 acres in "USFS, State Forestry, army ENGINEERS and private hands.
BLM's DEIS has addressed all impacts but one. the cumulative affect of Logging and activities on these other holdings coupled with BLM's activities is NOT considered. the burned areas are described as a "checkerboard", yet the BLM DEIS reads as if there is Nothing but BLM land effected.
Sincerely
Jo Bigman

000003

Timbered Rock Fire Salvage and Elk Creek Watershed Restoration DEIS
Comment Form

This form is provided to accurately capture, in your own words, any information, comments, questions, or concerns you would like to share about the Timbered Rock Fire Salvage and Elk Creek Watershed Restoration DEIS. Thank you for your time and help in our efforts.

If you need additional space for your comments, please use the supplemental form or a separate sheet of paper. Include your name and "Timbered Rock DEIS Comments" on the sheet. Leave this form and any supplemental pages with one of the Timbered Rock EIS Team or send your information directly to:

Bureau of Land Management
Comments, Timbered Rock DEIS
3040 Biddle Road
Medford, OR 97530

Name: Ralph McKechnie
Organization/Business: UPPER Rogue Independent
Mailing Address: 13424 WOODRUFF WAY, WHITE CITY, OR 97503

Comments:
Prefer alternative E - Cut all Merchantable timber and create employment and maximum Economic Impact to county. - Rebuild Roads for future fire fighting - Maximum fuel treatments and De-Commission ins Roads -

PLEASE NOTE:
Comments, including names and street addresses will be available for public review at the Medford District Office. Individual respondents may request confidentiality. If you wish to withhold your name or address from public review or from disclosure under the Freedom of Information Act, you must state this prominently. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, or officials of organizations or businesses, will be made available for public inspection in their entirety.

Do you wish your name/address withheld from public review? YES (NO) (Circle One)

000004

September 18, 2003

BLM Comments
Timbered Rock DEIS
3040 Biddle Road
Medford, OR 97504

Re: Timbered Rock DEIS

Dear BLM,

The following are my comments on the Draft Environmental Impact Statement for salvage logging federal forest lands burned by the Timbered Rock fire. It is my understanding that this fire exhibited a classic burn mosaic: 428 acres burned hot, 1,347 acres burned with moderate intensity, 3,583 acres burned cool, and 3,103 acres did not burn at all.

The entire federal forest portion of the burn occurred in the Elk Creek Late Successional Reserve (LSR), which contains 18 Northern Spotted Owl activity centers. The planning area is also a Tier-1 Key Watershed, designated as such to protect at-risk chinook and coho salmon, as well as steelhead. Thus, this is a very significant forest area for fish and wildlife.

Forest fires are a natural occurrence and salvage operations should not be used to aggressively log an area which is designated to be managed for older forest habitat. The preferred alternative, G, is just that, calling for logging over 24 million board feet (the equivalent of over 12,000 logging trucks) from within the LSR. It is unacceptable to me.

Particularly since the surrounding forests have been clear-cut (making the LSR a refuge for older forest dependent species), the BLM forests should be left to recover naturally. The chosen alternative should improve older-forest structure in the LSR, improve fish habitat in Elk Creek, and require surveys for species listed under Survey and Manage before salvage operations begin, with designated buffers for occupied sites.

Thank you for considering my comments.

Sincerely,
Karen Sjogren
Karen Jeanne Sjogren
521 Taybin Rd. N.W.
Salem, OR 97304

000005

2260 Jasmine Ave.
Medford, OR 97501
Sept. 14, 2003

Mary L. Smelcer
Acting District Manager
Medford District BLM
3040 Biddle Road
Medford, Oregon 97504

Dear Ms. Smelcer,

After reviewing the Draft Environmental Impact Statement for the Timbered Rock Fire Salvage and Elk Creek Watershed Restoration, I am concerned that a major environmental risk has not been addressed in the impact statement. I found little, if any mention of soil erosion, and the impact of the proposed actions upon the colloidal clay deposits found in and around the Elk Creek watershed. It is my understanding that the disturbance of these soils, and the impact of their entrapment in Lost Creek Dam, and Elk Creek Dam were the overriding reasons that the north road around Lost Creek Dam and Elk Creek Dam were never built. You need to address soil stability, soil types, and areas where disturbance will affect the water quality of stored and free flowing water, and its impact on the Rogue River fishery. Thank you for this opportunity to respond.

Sincerely,
Bill Meyer

000006

"Faist Family" <faist@magick.net>
09/25/2003 08:41 AM
To: <or110treis@or.blm.gov>
cc:
Subject: timbered rock deis

Dear Sirs,
I am writing in concern for the Timbered Rock Deis. Among many reasons for my concern the largest one is that we must not cut OLD GROWTH TREES. It is proved over and over again that there is no good reason to do this except for economic reasons and there are plenty of second growth trees to stimulate economics for the timber industry. With the scare of forest fires this should be seriously considered a mistake to cut the fire resisitant old trees. That is my plea, Thankyou for listening...

Sincerely, Louann Faist
PO Box 343 Williams OR 97544

000007

Janscalise1@cs.com
09/29/2003 07:20 PM
To: or110treis@or.blm.gov
cc:
Subject: Salvage Logging within the Timbered Rock fire area

I oppose the BLM's Alternative G proposal to salvage log within areas burned by theTimbered Rock fire. It is FAR too extensive.

000008

"G.L. LeBlanc" <genofthesea@earthlink.net>
10/01/2003 08:35 AM
Please respond to genofthesea
To: or110treis@or.blm.gov
cc:
Subject: Timbered Rock DEIS Comment

Dear Mr. Nimmo:

Please accept this letter as my official comments concerning the Timbered Rock DEIS.

* The entire federal portion of the burn occurred within the Elk Creek Late Successional Reserve, as well as a Tier-1 Key Watershed. The LSR guidelines of the Northwest Forest Plan indicate that the BLM is only allowed to salvage in an LSR where the live canopy is less then 40%. I do not see this in Alternative G. It also calls for the retention of all live trees in the LSR, yet ALternative G calls for 'green-tree' logging, as well. 'Hazard' trees should be felled and left along the road, as suggested in the NFP, leaving the wood for species associated with LSRs.

* Over 6,000 acres of private land have already been salvage-logged purely for "economic recovery," without regard for late-successional or hydrological values. The cumulative effects analysis discounts many of the significant impacts of the 6,000 logged acres combined with Alternative G. Let these 6,000 acres meet the purpose and need of economic recovery from the Elk Creek watershed. The Medford Resource Management Plan (RMP) deferred logging from 7,611 acres of the watershed due to cumulative impacts during the 1990s. Now, these 6,000 acres have already adversely affected the watershed, and to add alternative G will put it in worse shape then when the BLM agreed to 'let it rest.'

* Most of the old-growth burned cool, while the plantations scorched. Save the plantations for matrix land, and leave the LSR as a RESERVE. The Spring Salvage Timber Sale Level 2 consultation (March 1998) concluded that the fuel break proposal would NOT BE EFFECTIVE in controlling a large-scale, high intensity fire, although they might effective in controlling small-scale, low-to-moderate-intensity burns, these the the type of burns that need to be occurring within the LSR. Massive fuel breaks are ineffective for the LSR allocation.

* Most of the old growth burned cool, while the plantations scorched. Leave the large old growth--they are the fire-resistant trees so necessary to an LSR and Tier 1 watershed. Leaving 6 trees per acre is a clear cut. It is well established that this kind of logging literally suffocates the fish that need the Tier-1 watershed. Do this research on private lands within the matrix, please, not on our LSRs.

* The DEIS seems to exalt economic objectives above those of the LSR and its inhabitants. I do not see a size limit in Alternative G. I see new roads. I see 20 million board feet. I see 811 acres of old growth logged for 'pine release.' The Elk Creek watershed is clearly within its natural range of variability for fire return. Logging old growth is unacceptable. Again, use matrix lands for this purpose.

* While no one wants to hurt our economy or our working community, there are trade-offs that must be made in the name of conserving what little land we have reserved for the old trees, all the life they support, and all the water and air they hold and give back to us. Therefor, I cannot support the preferred Alternative G. However, I do support Alternative B, which contributes to the community through jobs, and through nurturing the last of our late-successional lands.

Sincerely,

--
Hi George,

I took the liberty of combining your comments with some stuff i got out of the jefferson monthly, and a little of my own. I'm hoping it will be easier for people to send and understand. This is just a rough draft--let me know what i should change, if anything. One of my friends already wrote. If you approve this, let me know, and i will offer it to everyone as a cut-and-paste comment, while of course suggesting that their own words are better. it's been my experience that while some people will work on it, many do not have the time, and a cut-and-paste is better than nothing. Thanks for all the help. Looks like i have a lot of catching up to do on all kinds of studies, and how to read the DEIS, if i'm going to be working w/this stuff! Gen

Dear Mr. Nimmo:

Please accept this letter as my official comments concerning the Timbered Rock DEIS.

* The entire federal portion of the burn occurred within the Elk Creek Late Successional Reserve, as well as a Tier-1 Key Watershed. The LSR guidelines of the Northwest Forest Plan indicate that the BLM is only allowed to salvage in an LSR where the live canopy is less then 40%. I do not see this in Alternative G. It also calls for the retention of all live trees in the LSR, yet ALternative G calls for "green-tree" logging, as well. "Hazard" trees should be felled and left along the road, as suggested in the NFP, leaving the wood for species associated with LSRs.

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* While no one wants to hurt our economy or the working community, there are trade-offs that must be made in the name of conserving what little land we have reserved for the old trees, for all the life they support, and all the water and air they hold and give back to us. Therefor, I cannot support Alternative G, or most of the other alternatives. However, I do support Alternative B, which contributes to the community through jobs, and through nurturing the last of our late-successional lands.

Sincerely,

G.L. LeBlanc
1155 Fielder Creek Road
Rogue River, Oregon 97537
--

000009

Conny Lindley
<conny@magick.net>
10/01/2003 06:03 PM

To: or110reis@or.blm.gov
cc:
Subject: Timbered Rock DEIS comments

Dear Mr. Nimmo:

Please accept this letter as my official comments concerning the Timbered Rock DEIS.

* The entire federal portion of the burn occurred within the Elk Creek Late Successional Reserve, as well as a Tier-1 Key Watershed. The LSR guidelines of the Northwest Forest Plan indicate that the BLM is only allowed to salvage in an LSR where the live canopy is less then 40%. I do not see this in Alternative G. It also calls for the retention of all live trees in the LSR, yet Alternative G calls for 'green-tree' logging, as well. "Hazard" trees should be felled and left along the road, as suggested in the NFP, leaving the wood for species associated with LSRs.

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* The DEIS seems to exalt economic objectives above those of the LSR and its inhabitants. I do not see a size limit in Alternative G. I see new roads. I see 20 million board feet. I see 811 acres of old growth logged for "pine release." The Elk Creek watershed is clearly within its natural range of variability for fire return. Logging old growth is unacceptable. Again, use matrix lands for this purpose.
* While no one wants to hurt our economy or the working community, there are trade-offs that must be made in the name of conserving what little land we have reserved for the old trees, all the life they support, and all the water and air they hold and give back to us. Therefore, I cannot support the preferred Alternative G. However, I do support Alternative B, which contributes to the community through jobs, and through nurturing the last of our late-successional lands.

Sincerely,
Conny Lindley
Williams, Oregon

000010

BOISE

Boise Building Solutions
Western Oregon Area
P.O. Box 100 Medford, Oregon 97501
P 541-776-6666 F 541-776-6618

September 16,2003

Bureau of Land Management
Comments, Timbered Rock DEIS
3040 Biddle Road
Medford, Oregon 97504

To Whom It May Concern;

This letter is in response to the request for comments on the *Timbered Rock Fire Salvage and Elk Creek Watershed Restoration Draft Environmental Impact Statement (DEIS)*. Boise Cascade Corporation (Boise) has a great interest in the outcome of this plan, as Boise lost 9,100 acres in the Timbered Rock Fire and will spend millions of dollars to reforest these lands. Action or inaction by BLM land managers will have a great impact as we consider our long-term management plans. Additionally, these BLM lands are very productive sites and play a key role in our long-term timber supply. This fiber supply that supports our mills and creates jobs within our communities, is linked to Bureau of Land Management actions and policy statements. Furthermore, Boise is a certified participant in the Sustainable Forestry Initiative (SFI) program and implements all state approved Best Management Practices (BMP's) embedded in the Oregon forest practices rules and regulations. Management direction determined in the final EIS can impact our ability to maintain and enhance stewardship efforts on our lands.

Boise supports the preferred Alternative "G". However, we would like to take this opportunity to provide comments intended to strengthen your position in the final EIS, to show that active management is the only alternative to accomplish your stated goals.

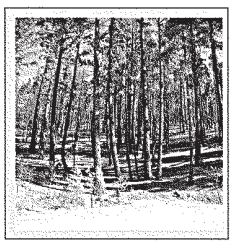
In section S1.2 page iii of the DEIS, the project's Purpose and Need states two objectives 1] restoration activities, 2] recover economic value. A third opportunity mentioned is incorporating research related to post-fire logging. Boise's comments follow this outline.

Restoration / Forest Health

In section S1.2.3, page iv, the DEIS references the need to evaluate actions to enhance the development of late-successional forest habitat conditions. The only proven method to have big trees in the future, as shown by Oregon State University's Forestry Intensified Research (FIR) project, is to aggressively get small trees established, by maintaining their vigor through vegetation management (Hobbs, et al. 1992). This approach will gain early stand establishment and a timely return of habitat and structure desired. The BLM needs to develop a plan, within a responsible time frame, backed with proven science that sets a course to develop another forest.

All the restoration activities directed at improving fish habitat or minimizing sediment movement, in the plan, are described as isolated projects. This comes across like accomplishing "random acts of kindness" across the landscape, rather than a comprehensive plan to address issues. It is not clear to the reader what, if any, all this activity will accomplish. It would be helpful to summarize the alternatives so that, on some relative scale, the reader could discern the long - term consequences of all these actions combined.

There is a section concerning environmental justice but no section describing the stand structure or "trees" pre-fire or the envisioned stand structures of the future. All the discussion about snags, fuels, wildlife, and noxious weeds is disconnected with what the future forest could look like and provide. The ecological reality is that these sites at age 100 might have roughly between 150 and 185 trees per acre with diameters between 10 and 26 inches. (The Yield of Douglas Fir in the Pacific Northwest, Bulletin 201, McCardle, USDA). The stands that burned (according to the descriptions of pre-fire conditions observed and measured on Boise lands in younger age classes) had 5 to 6 times more trees. The BLM should, at a minimum, describe the targeted conditions over a given time frame and show how the alternative they adopt accomplishes the desired results. If big trees truly have more value for wildlife, then biologists should set the threshold of how big and how many trees are needed. Intensely managed stands will develop these characteristics sooner and the differences in strategies employed will be evident.



Typical post fire stand

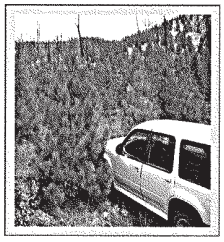
With many stems per acre more than what is "normal" for sites like this to carry. Notice less than 20% to 30% sunlight hitting the forest floor at midday after the fire. These low light conditions will exist for years, If little to no salvage of dead timber is accomplished. This will have severe impacts on future stand development.

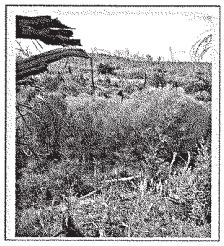
Reforestation

Whether an acre is "lightly" or "moderately" burned, if the trees are dead they are dead. The final plan needs to recognize acres in need of reforestation and implement a plan to effectively reforest these acres. It is unclear how in the "No Action" alternative, reforestation occurs on 6,000 acres, however in Alternative "G" there is only a need for planting 3,176 acres. Because most of the trees over six inches DBH (even on "severely" burned acres) are still on site, the potential of reforestation failure is great [due to the immense stocking, there will be a significant shading effect to little trees for years to come]. Reforestation efforts and maintenance are not described in any detail. The resource professionals from the silviculturists to biologists and soil scientists, should describe what these sites will look like over time and how the conditions meet Late Successional Reserve (LSR) goals, given various reforestation scenarios.

Two recent Oregon State University studies in Ames Creek and Sweet Home by Newton (1998) included observation of 1700 Douglas fir trees, under various degrees of canopy closure, to evaluate survival and growth. The conclusion of these studies is that Douglas Fir *survival* rates will be reduced by 50 to 80% due to growing in the shade, versus no shade competition. Growth reduction in these various shade intensities will be 90% less than open grown trees, regardless of the density of the over story. As a result, planting [assumed] 400 Douglas fir trees, under the existing stand densities after the fire with minimal to no harvest will conservatively result in only 100 to 150 trees per acre surviving. For the next two decades, [while all the fire killed trees start to fall apart and fall down] the resultant stand will be of low vigor trees with poor growth. Mortality will likely take another 50 trees and the surviving trees after 20 years will likely be only 3 to 4 inches in DBH and only 15 to 20 feet tall. Consequently after 50 years, there will likely be less than 50 trees per acre that are only 9 inches DBH. While this is an "estimated average" the BLM should further evaluate their own prescriptions and describe their reforestation plans more specifically, so these projections can be displayed by alternative and well understood. At what size do these trees have wildlife value? How long will it take by alternative to accomplish the LSR goals?

The fire return interval described by ecologists for this area is approximately 20-25 years. Local ecologists have shown the fuel types generated after a large event like Timbered Rock Fire can actually precondition these stands to burn again. The likely scenario is this will burn at least once, over the next 50 years, hotter than the last fire. The BLM should model fire behavior and show expectations of survival of these stands due to this kind of potential fire.

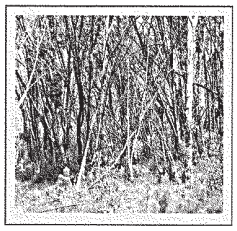




Hull Mtn sites that were salvaged and much of the residual cover was slashed. On Boise sites Ponderosa Pine [left] and Douglas Fir [right] are between 9 and 15 feet tall and beginning to fully occupy the site and provide the young seral habitat stages of forest development for many species. Stream side management [right] along Ramsey Creek developed 100% cover in less than 3 years with willow, maple, and other species [today over 15 feet tall]. The open grown Douglas Fir on either side of the creek are now growing about 2 feet per year.

One final point concerning reforestation. Because the BLM is not using herbicides to manage weed competition, this does not relieve the BLM from managing competing vegetation. The OSU research done in the FIR project (the BLM was a significant financial supporter) summarized in Reforestation Practices in Southwestern Oregon, 1992, pg.125, points out "*moisture stress is identified as the most common cause of reforestation failure in the region.*" Further studies in Northern California (Garden of Eden Experiments, 1992, USDA) found that 25% competitive cover was effectively equivalent to 100% competition for available moisture. The BLM needs to very carefully explain their plan for reforestation establishment and maintenance to ensure sufficient seedlings achieve a free-to-grow status and grow at an adequate rate to become the desired future forest, regardless of the alternative chosen. If Alternative "G" is selected and 3,176 acres are replanted, the BLM should plan to treat these acres to control competing vegetation perhaps multiple times each year for a minimum of 4 years and possibly more. By way of an example, please consider the workforce necessary to treat the competing vegetation on these planted acres by manual means. There may be a need for up to 9,000 acres of manual brush control after planting. A twenty-man crew might be able to accomplish 10 acres per day. They also may only be available half the year, while other activities like fire fighting, planting, etc. occupy their time. This means that a twenty-man crew would only accomplish 1,000 acres per year. Hence, the BLM would need upwards of nine of these twenty-man crews

The following pictures represent what the future will look like for at least the next 7 to 8 years. This is *not* a modeling exercise or opinion, rather this is ecological reality. These pictures are from the Hull Mountain fire in 1994 and point out the consequences of competition for moisture and light, in the regeneration of young trees. The largest weakness in the DEIS is the failure to accurately display outcomes of the intended plans, so the public can understand future results. Nowhere in the DEIS is there a clear picture of 1] how trees grow, 2] that sites do recover, 3] soils stabilize, and 4] habitat stages are replaced, when trees are established and growing to fully occupy the site. The following pictorial display is a comparison of Boise and BLM sites from the Hull Mountain Fire (1994). Pictures are from October of 2002 and plots were taken on BLM lands, at that time, by Boise contractors to verify stocking levels. The general expectation in the forest practices rule is for sites like this to have established at least 120 well distributed trees per acre, that are "free to grow" (above the brush and animals), within six growing seasons. Trees on BLM sites here, do not meet the "free to grow" criteria. The reality is with such overwhelming competition for moisture and light on these BLM sites, continuing tree mortality is certain and growth of remaining trees is imperiled.



Hull Mt. Fire sites where trees were not salvaged or slashed and because of competing vegetation, competition for light and moisture is severe. On BLM lands there are approximately 160 well distributed trees per acre with average height of 3-4 feet to create the forest of the future [if they survive] and create little to no large structure, canopy closure, etc. for many decades. The brush is over 10 feet on average.

to adequately address the competing vegetation on a manual basis. We question if the BLM has the infrastructure or budget for this level of activity. This part of the plan should be clearly explained in the DEIS. If the BLM can develop and budget for this infrastructure, we would strongly support Alternative "G". The BLM should not be so quick to disqualify the use of herbicides and should pursue obtaining the necessary approvals to use these tools. Careful selection and application of appropriate herbicides, following the product label and adhering to the EPA's worker protection standards will provide adequate protection to human health and the environment. After large stand replacement fires like Timbered Rock, an alternative deploying herbicides should be shown in contrast to manual methods, so the public can see the long term consequences of these choices along with costs and time frames to establish a new forest.

Wildlife / Soils / Noxious weeds

BLM biologists [fisheries and wildlife] need to evaluate how alternatives meet all their objectives for down wood, snags, crown cover, soil rehabilitation, wildlife habitat recovery [for *all* the species of concern]. The biologists need to evaluate if the goals are being met or *not met*, over the desired time frame. Since dead trees do not grow, how do we get 20 inch DBH trees and when do they occur in the future? Is the current plan acceptable to the wildlife biologists, and what happens to populations of a guild of species, such as woodpeckers, if it takes 150 years, rather than 50 years, to get a desired number of 20 inch DBH trees? If the biologists can not answer these kinds of questions, then the prescriptions in the DEIS are incomplete and unsatisfactory and need to be revised. If there are further questions, they should be turned into research proposals incorporated into Alternative "G".

As a result of the Timbered Rock Fire, there was a 51% (approximately 3,000 acres) loss of the Northern Spotted Owl (NSO) pre-fire habitat. Some acres were completely burned to severely downgraded from suitable nesting and foraging. Almost 1,000 acres of NSO habitat loss occurred on Boise lands (internal Boise Survey data 2003). If the goals of Late Successional Reserves is to create habitat for species like the Northern Spotted Owl, the alternative chosen from the final EIS should display the path to quickest recovery, given these kinds of losses. Currently the summary of Alternative "G" does not clearly show that.

What are the current conditions for snags and down wood? 10's of (trees) tons or 100's of (trees) tons per acre? How do current conditions relate to what the ecological communities historically supported? In vegetation communities where they were historically maintained by frequent, low intensity burns, the amount of downed woody material was considerably less than currently found on unmanaged forests. What is desirable and what will happen over the next 50 to 100 years with the standing material, if it is not removed? How much will fall down each year and what is the distribution of this down wood? What would be the benefits of a well-stocked stand of 10 year-old DF trees that are beginning to attain crown closure?

What is the amount of organic material in needle drop delivered annually, under a young stand of trees? Is the distribution of evenly distributed organic material coming from small trees a more viable solution than a couple of snags falling down each year and only covering up a very small portion of the site? Which one of these achieves the objective of "*returning to desired conditions sooner*"? If the soil scientists and biologists can not answer many of these questions, the prescriptions should be re-described. Also, the long-term consequences in the event of returning fires of greater magnitude, (due to the increased brush vegetation complex) should be described by alternative.

Sediment traps on both disturbed sites (Boise lands) and undisturbed sites (BLM lands) were measured recently after one year. The sediment trapped on all structures combined was over 150 tons. The relative comparison on both sites revealed that sediment moves on burned sites, regardless of activity level. Hence the notion, because there is "no action" or no more disturbances, there will be less sediment moving down the hillside may not be a viable premise. Our recent measurements cannot definitively address this question, however, similar to work of Chou (1994), our visual assessments indicate there to be very little difference in surface erosion between salvaged sites and ones which were not salvaged. Again, similar to Chou (1994), it is our belief that any surface erosion resulting from salvage logging activities is likely to be overwhelmed by the sediment produced as a consequence of the fire itself. We have shown that after harvest operations on burned sites, with aggressive slash placement in skid trails, whip falling on the hillside and hay bale structures in key locations, mitigation can be accomplished. The BLM could easily accomplish these goals by incorporating these kinds of requirements into purchaser contracts.

One of the concerns identified in the DEIS is about noxious weeds. The description of the current problem and potential increase is very poorly described. We believe the explosion of noxious weeds will be beyond any magnitude envisioned. The most effective way to control weeds, as is pointed out in the DEIS is to control sunlight. Therefore a closed canopy stand structure of young conifer trees would be the single most effective tool to control weeds. Within 10 years, the extent of noxious weed control could be reduced to less than 10% of the landscape and the focus then would be on roads and non-forested areas. The DEIS should describe this more effectively as support for why active management and aggressive reforestation is so vital.

Fire

The DEIS does not adequately address the future potential of these sites re-burning due to the tremendous fuel loading that will be coming down as the burned trees [if not removed] decay and fall down. The Ponderosa Pines and White Firs will be coming down at an accelerated rate in the first 5 years. Since the southern Oregon area sees over 30% of the State of Oregon's fire activity [most of it from lightning] and the fact that Timbered Rock Fire itself was lightning caused, the evidence would suggest that re-burn potential here is high. The BLM needs to factor in a fuel loading / fire modeling scenario to address the prescriptions suggested and assign potential risk factors to those scenarios to better weigh alternatives proposed. If the BLM is successful at reforestation and getting a young forest established and it were to burn all over again in 20 years – is that an acceptable risk, given that removal of more material today could have minimized or eliminated the risk? Consider the recent work on the Biscuit fire done by OSU scientists (Sessions, et.al. 2003) and use the models developed in this work to show the consequences of all the choices offered in each alternative.

The BLM needs to more fully assess the relative risks of short-term management restoration and long-term consequences of "no" management, with regards to listed species, vertebrate viability, water quality and long-term productivity. Maps prepared by Hardy et.al. (2000) of the Forest Service Fire Sciences laboratory in Missoula, Montana are coarse scale maps which project fire hazard by condition class. The findings display that 85% of Oregon's forests are either at high or medium risk of losing key ecosystem components (species composition, structural stages, stand age and canopy closure) because fire regimes have been either moderately or significantly altered from historical ranges. Based on these maps, as well as work by Laverty and Williams (2000) concerning the over accumulation of fuels in these fire adapted ecosystems, the unburned portions of the Elk Creek Watershed are in an extreme risk situation. The recent fire seasons are a sad affirmation of earlier projections by Quigley (1997) and Sampson (1994). The recent decade of greatly curtailed forest management and delayed planning for forest ecosystem restoration, only makes the case more extreme that the long-term impacts of "no-management" quite likely far exceed the short-term impacts of salvage, reforestation and restoration activities. The BLM should display these, side by side comparisons, for the basis of any alternative they choose.

The most recent work by John Sessions (2003) at OSU concerning the management options on the Biscuit Fire would be an excellent work to site as reference to the choices the BLM might make in an improved Alternative "G". The BLM should employ the new Categorical Exclusion regulations for CE #10, #11 (effective June 5, 2003) and CE # 12,13,14 (effective July 29,2003). All of these tools give the agencies flexibility and direction outside the normal planning process to at least begin to address the huge fire potential that still exists in the Timbered Rock Fire perimeter and surrounding vegetation.

Recover Economic Value

The DEIS overly emphasizes short-term risk, and does not adequately describe the tradeoffs if more trees were harvested. Also, there is no discussion about potential hazard reduction that could be applied, other than the discussion about roads. This is misleading to the public. Many activities during harvest operations, as well as post harvest, can be applied to minimize hazard to whatever risks are identified. As an example, during harvest activities, the tops of trees could be cut and left on site, rather than hauled up to a landing. Post harvest activity could include slashing or limbing of these tops to get the organic material in contact with the ground before the first winter after harvest. This would break up the potential for overland flow of water and return organic material to the soil faster, as it begins to breakdown. Both of these issues were identified in the DEIS as a concern. However, none of the professionals address what could be done, only what cannot be done. These kinds of activities may add cost but are unlikely to be a significant detriment to the overall project.

All road decommissioning should be tied to an overall plan that does not inhibit future access for fire suppression or inhibit landowner access. The current Alternative "G" needs strengthening in this area. A complete basin-wide fire plan for the future should be developed with adjacent landowners and input from the Oregon Department of Forestry, before any plans to decommission roads can be described adequately. Do some roads play an important role in pre-designated firebreaks? How will they be maintained? If they are put to bed, are the specifications such that they can be easily re-used for fire suppression work? Consider seeking advice from the Department of Forestry on how to do things to improve their (ODF) ability to protect BLM lands in the future.

If the BLM intends to salvage, then it needs to be expedited. Salvaging timber at Timbered Rock will be difficult in 2004 and nearly impossible in later years. We have found after two seasons, that the wood strength and quality has significantly declined. Within one year, checking in the smaller logs (less than 10 inches) has made them difficult to process. Costs and values need to be clearly understood if salvage sales are to be sold.

The following contract issues should also be addressed:

1) Timber sale purchasers should be allowed termination date extensions on BLM contracts.

2) If a contract cannot be awarded by June 1, 2004, the salvage sale purchaser should be able to withdraw the offer at no cost to the purchaser.

3) End result slash disposal objectives should be described, and then allow the purchaser cost effective ways of meeting those objectives.

4) Salvage Sales should be sold "net recovery sales", not gross lump sum.

5) Sample scale should be available, subject to BLM approval.

6) Road improvement and maintenance should allow for a high volume of salvaged timber to be removed before the end of 2004.

Research

Under any successful alternative, the BLM should consider working with Oregon State University to describe a series of research efforts, related to post fire harvest operations that address the NEPA concerns, which continue to plague the agency and prevent them from moving forward after events like this. Boise stands ready to assist in any way necessary, from developing support to providing study plots on Boise lands. There are many myths about recovery of forests after fire and salvage. For the last 25 years in Southern Oregon, Boise has been involved in successful reforestation of thousands of burned acres and would submit this fact as testimony to the benefits of the "active management model" based on science, versus the "no management" model based on myth. If many of the questions we raise are important and there are not good answers, then Alternative "G" could be expanded to provide research to answer these questions.

Thank you for the opportunity to comment. If any of the information presented is unclear or you would like to discuss it further we are available to do so at 1.541.776.6689. The literature citations are also available if you are unfamiliar with them.

Sincerely,

Kenneth P. Cummings Kenneth C. Wisch

Timothy D. Burnett Daniel Carr

Russell J. McKinley Mark W. Nystrom

cc: Senator Gordon Smith
Congressman Greg Walden
Jackson County Commissioners (3)
Boise – Legal Department

Sources:

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000010 (cont.)

BOISE

September 26,2003

Bureau of Land Management
Comments, Timbered Rock DEIS
3040 Biddle Road
Medford, Oregon 97504

To Whom It May Concern,

Please consider these added comments from specialists in our corporate office as an addendum to our official comments.

Attached for your reference to the Timbered Rock DEIS are the following documents:

- Cover notes (4 pages) with added comments concerning stated impacts of past forest management versus implied impacts. Also is a short summary of how active forest management may affect owls.
- Boise comments to USFW on the 5 year review of the Northern Spotted Owl.
- NCASI comments to the USFW on the 5 year review of the Northern Spotted Owl.

It is our intent that this information would prove useful in constructing a science based case for a more active management strategy to recover the Timbered Rock Fire area.

Again, thank you for the opportunity to comment and should you have any questions please feel free to call and we will put you touch with the correct person to address your concerns.

Sincerely,

Kenneth P. Cummings
Chief Forester - Boise

vjm

Comments regarding:

Timbered Rock Fire Salvage and Elk Creek Watershed Restoration
Draft Environmental Impact Statement

In general Boise supports the selected Alternative (G) and believes that the BLM has put together a very high quality document. Please accept the few comments and suggestions below as being constructive, which is their intent.

A review of Sections 3.3 through 3.6 and 3.12 generated a number of concerns or ideas regarding the following issues relating to sediment, fisheries, water quality and wildlife;

- Stated impacts of past forest management and implied impacts
- Questionable cause-and-effect relationships
- Additional support for selecting Alternative G
- Active management and its role in sustaining northern spotted owls

Stated impacts of past forest management and implied impacts.

These concerns rest largely on the differences between past forest management standards and current standards and the fact that these differences go largely unacknowledged throughout the text. Admittedly, past forest management had significant negative impacts both fish habitat and water quality in certain situations. As the DEIS indicate, splash-damming, riparian harvesting, poor road construction techniques and placement, and voluntary removal of instream woody debris simplified and reduced the quality of fish habitat and water quality. Though these statements are generally correct regarding past practices the DEIS implies that current forest practices are likely to have impacts of similar magnitudes.

> "Researchers concluded timber harvesting and road building greatly increase the occurrence of the torrents (Swanson 1978; Sidle, et al. 1985) in a mountainous watershed (pg. 3-14)."

> "Road building in steep mountainous terrain has been long recognized as the single greatest cause of soil mass movement (Swanston, 1970). The increased rates of failure were assessed at 25 to 400 times the rates of failure for undisturbed terrain (Sidle, et al. 1985). (pg. 3-28)"

It is important to recognize past impacts due to poor management practices, however, it is equally important to indicate that changes in current forest management practices have largely minimized these same impacts, such that it is possible to both harvest timber and supply high quality fish habitat and water quality. This is done briefly on pg. 3-18:

> "Current harvest practices result in little eroded sediment from reaching streams."

However, there is ample opportunity to cite the work of the Oregon Department of Environmental Quality released the Sufficiency Analysis: A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality (ODEQ, 2003) which concludes in large part that current Forest Practices Rules in Oregon are sufficient to meet the State's water quality standards. For example:

> "When unfiltered surface runoff from general road use is minimized, and/or if all applicable BMPs have been applied, both the FPA and water quality standards are being met as well." (pg. 47)

> "With the exception of wet-weather road use, complying with the road construction and maintenance rules and guidance currently in place is likely to result in meeting water quality standards." (pg. 47)

> "With few exceptions, it appears when the guidelines are implemented correctly, the success rate is high for creating conditions believed to provide a high likelihood of fish passage." (pg. 48)

The Sufficiency Analysis does suggest changes to the current Forest Practices Rules may be necessary with regards to wet-weather hauling, riparian management requirements on certain stream types to meet certain state water quality goals. However, given this current research (2003 versus 1985) it is important to acknowledge that changes in forest management and forest practices rules have occurred and that many of the impacts discussed in previous research may not apply to current forest management impacts.

Questionable cause-and-effect relationships.

In general the literature cited and the representations of cause-and-effect are accurate however in certain instances I believe that the explanation of cause to effect and associated value judgments may not be entirely correct or justified. For instance:

> Mass wasting, as visible and recognizable soil movement, occurs as a result of major and/or prolonged rainy events, more specifically the rise of groundwater within a soil mass, or as a result of seismic events. These natural, episodic events deliver desired coarse material (soil, sand, gravels, cobbles and boulders, and wood material) into the streams." (pg. 3-11)

As stated in Appendix H of the DEIS, mass wasting events occur when the driving forces of the downhill weight of soil and water (and vegetation) are greater then the hill-normal weight of soil and water (and vegetation) and the cohesion of the soil mass to itself and to the underlying bedrock all adjusted for changing pore-water pressure. This can occur with or without a rise in the groundwater table depending on soil, vegetation and topographic characteristics. Furthermore, the "desirability" of this material likely depends on the channel type, the aquatic habitat of concern, and the type of material being delivered.

A second example of possible misrepresenting cause and effects is:

> "In the past, harvest activities resulted in disturbances and erosion in stream channels. Harvest of riparian areas and yarding in stream channels caused erosion in many tributaries during the 1960s and 1970s. The bedrock-based stream channels have not yet recovered from these disturbances, but the riparian vegetation has regrown and erosion is no longer occurring from past harvests." (pg. 3-25)

Harvest of riparian areas and yarding in stream channels likely resulted in channel erosion. However, the presence of bedrock channels is likely not the direct result of these activities. Loss of instream woody debris through mechanical removal as was suggested to improve fish passage as well road location and other anthropogenic disturbances throughout the watershed likely exacerbated the erosive effects of the flood of December 1964. At its peak, the stream flow near the mouth of the Elk Creek Watershed was 19,200 cubic feet per second. Data collected by the USGS indicate that a flood of this magnitude occurs less then once every 100 years. The next largest flood peak occurred in 1955 and was only 13,700 cubic feet per second. A visual assessment of near stream vegetation leads me to believe that much of this vegetation is 30 to 40 years old, likely established after the channel was scoured down to bedrock during this large flood event. The DEIS appears to attribute the presence of bedrock channels to harvest activities rather then the flood of 1964. The harvest activities, as well as other anthropogenic effects, may have exacerbated the effects of this flood but I believe it is incorrect to imply that the presence of bedrock channels is a direct result of harvest activities. Furthermore, I believe it is inaccurate to state that the "bedrock channels have not yet recovered from these disturbances" (i.e. harvest of riparian areas and yarding in stream channels). Again, these disturbances certainly impacted the stream channels but I do not believe it is clear what the recovered channel would look like given the huge impact of the 1964 flood.

Additional support for selecting Alternative G.

1. Sediment traps installed by both the B.L.M. and the Boise Cascade Corporation were recently surveyed to determine the amount of material trapped on the hillside. Surveys of sediment traps on both disturbed sites (Boise lands) and undisturbed sites (BLM lands) were measured. The sediment trapped on all structures combined well over 150 tons. The relative comparison on both sites revealed that sediment moves on burned sites, regardless of activity level. Therefore, the notion because there is "no action" or no more disturbance there will be less sediment moving down the hillside may not be correct. Our recent measurements cannot definitively address this question, however, similar to work of Chou (1994), our visual assessments indicate there to be very little difference in surface erosion between logged and unlogged sites. Again, similar to Chou (1994), it is our belief that any surface erosion resulting from salvage logging activities is likely to be overwhelmed by the sediment produced as a consequence of the fire itself. We have shown that after harvest operations on burned sites, with aggressive slash placement in skid trails, whip falling on the hillside and hay bale structures in key locations, mitigation can be accomplished.

2. As stated in the DEIS, data comparing surface erosion rates from logged versus unlogged burned hillslopes is extremely limited. The preferred Alternative G presents a unique opportunity to conduct such research. Boise Cascade Corporation would be willing to assist the B.L.M. in designing and implementing just such a project.

3. In discussing the Effects of Alternatives with little or no salvage logging there may be an opportunity to more strongly address two items. First, as discussed in the DEIS significant hydrophobic soil conditions can develop after intense burning of the duff material. The impacts of hydrophobic soil conditions might be increased surface runoff and consequently increased surface erosion and increased storm flows. As also discussed in the DEIS, mechanical breakup of the hydrophobic soil during salvage logging operations can significantly reduce the areal extent of hydrophobic soils thus reducing the negative impacts on water quality and aquatic habitat. Second, active management can lead to a decrease in the length of time required for seedlings to become established and begin significant root growth which will begin to replace the lost soil cohesion due to the rotting of existing roots post-fire. This added cohesion will reduce the risk of mass wasting events. Furthermore, the sooner trees and their root systems become established the sooner the evapotranspiration recovers which further reduces the risk of mass wasting due to the decrease in soil saturation.

Active management and its role in sustaining northern spotted owls.

In June 2003, Boise submitted comments in response to the US Fish and Wildlife Service review of the listing status of northern spotted owls and marbled murrelets. These comments are included here as an attachment (see OwlStatusReviewJune2003.pdf), however the primary conclusions are summarized below:

1. Boise's most productive owl sites are at high to moderate risk from uncharacteristic wildfire.
2. Recent uncharacteristic wildfires in fire-prone owl habitat has reduced total owl habitat.
3. Spotted owl centers are being actively managed with silvicultural treatments without compromising the ability of these sites to attract and produce young.
4. The sustainability of spotted owls and their habitats in fire-prone forests appears doubtful without active management to reduce risks of uncharacteristic wildfires.

We believe our experience and perspective, as documented in the comments, strengthens the contention in the DEIS that fuel treatment and restoration are necessary for the continued persistence of northern spotted owls.

000011

MEMORANDUM

TO: BUREAU OF LAND MANAGEMENT
COMMENTS, TIMBERED ROCK DEIS

FROM: GINA GIACONE, EIT
HUMBOLDT STATE UNIVERSITY
ENVIRONMENTAL RESOURCES ENGINEERING STUDENT

SUBJECT: TIMBERED ROCK FIRE SALVAGE AND ELK CREEK WATERSHED RESTORATION DRAFT EIS CRITIQUE (PUBLIC COMMENTS DUE BY SEPTEMBER 30, 2003)

DATE: OCTOBER 3, 2003

SUMMARY

The following is a critique on the draft Environmental Impact Statement (EIS) titled, *Timbered Rock Fire Salvage and Elk Creek Watershed Restoration*, which was available for public comment starting in August 2003. A procedural and technical critique of the EIS on the proposed project is given in the following paragraphs. This draft EIS had an overall good presentation, many good points were made, and many environmental impacts were addressed. On the other hand, this document did not state any criteria used for the determination of the preferred alternative and it did not have substantial evidence backing up why an impact that would have "negligible effects on the environment".

PROCEDURAL CRITIQUE

EIS Format

Referring to the U.S. Department of Energy guidelines, this EIS generally follows the recommended format. In the Purpose and Need section, the order in the section should follow the title. This document places the Need section prior to the Purpose section. To be consistent, this order could be switched around. The Alternatives Section begins with a general description of the desired effects for salvage and restoration. This is a good introduction for the reader, and is informative of where the alternatives were and why the alternatives were generated. The alternative titles should be consistent and should either be capitalized like a title or not capitalized. The Affected Environment section was very thorough and appeared to take all aspects into consideration.

NEPA Intent

This EIS shows that the project has the intent of restoring a watershed so that it can be there for future generations to enjoy. The National Environmental Policy Act has multiple objectives, which

the writers of this EIS seem to take into account. The writers show that this project will involve replanting plants/trees/vegetation that were destroyed in the fire and restore the watershed as they had planned to do prior to the fire (this will involve thinning and salvage of trees to promote a healthy ecosystem for all vegetation). The objectives of this project will ensure that one species does not dominate and "take over" the watershed. This will ensure that the following sections of NEPA will be fulfilled "(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations…(3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences…(5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities (NEPA, 1997)".

The Lead Agency/Stakeholders/EIS Preparers

This document makes it very clear who the lead agency is and any agencies, organizations, or people involved. In chapter 4, page 3, there is a distribution list and locations where the document will be available. Many of the agencies who are involved were mentioned several times in the document. The Lead Agency (Bureau of Land Management-BLM) states multiple times the importance of public involvement and ways the public can become involved in this EIS process. BLM also states that if the public's comments are relevant (what will be the criteria for determining the relevance is not stated), they will be included into the final EIS. The list of preparers includes a wide range of professions, and it includes the preparer's name, as well as their profession and educational/professional backgrounds.

Topic Balance and Relevant Information

This EIS is a relatively long document and some of the sections seem to be repetitive. Much of this document could be condensed so that there would be less repetition. The Alternatives sections seem to repeat information. Since this project involves many different salvage/restoration approaches, the bulleted lists were very effective. For readers to follow more clearly and understand the message from the lead agency, more bulleted lists or tables might be a better way to present some of this information and reduce the amount of repetition.

Basic Comprehension of Text, Tables and Figures

Keeping the reading level of the target audience in mind as well as using more tables and figures rather than using large paragraph with numbers in it would make the document more effective. Sometimes it seem as though the writer's audience was not for the general public (with an 8th grade reading level in mind). I am almost a college graduate and found some of the wording hard to follow. Also, there are often numbers and statistics placed in the middle of a paragraph and there aren't any tables or figures to represent what they're trying to say. There was also an inconsistency in defining acronyms. When a name of an agency was first mentioned, the acronym was used instead of the title and its acronym in parenthesis. After the acronym was mentioned several times, it was later defined. The first time the agency or title is mentioned the acronym should be identified; from then on there isn't a need to define it.

The text and tables in the document were well organized, but sometimes redundant. The color and graphics were attention grabbing. On all of the maps it looked as though the checkerboards were curved lines rather than perfect square sections. I'm not sure if this was intentional or not.

Alternative Range

The preferred alternative was not defined as to why it was better than any of the other ones; it was simply the "preferred choice" of the lead agency. From the information provided, the average person could probably not make informed decision on the project. This is because the criteria used to eliminate the alternatives are not stated. The criteria for choosing the best alternative are not specifically mentioned nor are the ranking of any criteria. The alternative that would generate the most revenue and would cost the least was not chosen, so it is difficult to even make assumptions as to what the criteria are. Why this alternative was eliminated is not described.

The cost estimates provided just appear in the document and there isn't any information or references backing up the numbers. No cost/revenue estimate was provided in the

3

summary. A dollar amount associated with the alternatives in the summary would have been appropriate.

TECHNICAL REVIEW OF THE VEGETATION SECTION

Looking at the Water Quality Section from a technical stand-point, it shows that the document is very thorough (sometimes a little repetitive) and provides numerical back-up. Before this EIS was written, the Elk Creek Watershed Analysis and the South Cascades Late-Successional Reserve Assessment were written evaluating the need for restoration efforts in that area. Other than the data acquired from after the fire, habitat and seral stages were previously determined and then updated/adjusted after the fire.

The purpose and need of the project was well stated. As the Need Section states, the preferred alternative will attempt to rehabilitate the landscape damaged in the fire; to assess changes in the late-successional habitat conditions within the Elk Creek LSR; and to reevaluate the restoration/other enhancement efforts. It will also attempt to meet specific objectives such as: protect and enhance conditions of late successional and old growth forest ecosystems and manage to create, protect, and improve special habitats. What the document does not do is provide complete information from research related to post-fire conditions or activities (such as the effects of large, dead woody debris on the landscape). This is a part of the need statement, which is referred to in the document, but it is never stated that there was any research completed.

The writers often refer to requiring additional research and identifying unknown effects. These efforts should be done prior to the release of the final EIS. Throughout this section, it is mentioned that there needs to be more research done on functions of large dead wood and effects of coarse woody retention (pg 3-108, 3-109). This research could be fulfilled by looking into similar historical fires and using any salvage data found from those projects. If research is being done once the project starts, then the value of the logs will decrease while research is in place. To prevent this, as much research as possible should be done prior to the project.

Many times the DecAID Wood Advisor (a program used to develop methods for managing snags, dead trees, and downed wood in forests) was mentioned, but without any sort of reference. I had to go and search for information on it in the bibliography. On Page 3-108, the writers state, " The amounts of coarse woody debris remaining on-site in these areas exceed the amounts suggested by

4

the LSRA and DecAID Wood Advisor as typical levels of coarse woody debris in these forest types (BLM, 2003)". Within this statement there is no reference to what those values might be or how to find them in the attached appendix.

Many of the paragraphs in this section contain of numerical data that seem to be "lumped together" so that it is not easily understood. Rather than listing the data in a sentence and then putting in a table, it would be more effective to just be put in a table or figure of some sort. Otherwise, the reader loses focus on what the writer is trying to say or how to interpret what they're trying to say.

In the Vegetation Section, on page 3-103 there is no actual impact listed under the salvage section. The writers state that the impacts of salvaging, in general, are negligible. What about erosion and nutrient cycling? I'm not quite sure how they arrived at this conclusion or what process was used to determine this. On the same page under the reforestation section, it is stated that it is unlikely that there will any cases of beetle infestation. How was this conclusion determined? What mitigations will occur if the unlikely beetle infestation did occur?

Most of the sub-sections within the Vegetation Section adequately describe the direct and indirect effects to various habitat through the implementation of salvage and restoration; however, mitigations that will occur if impacts become significant are not described. For example, what will happen if the soil's organic matter has been destroyed by the fire (soil heating), and what if the replanting of habitat fails and only hardy, invasive species can grow in the soil?

If there was a description of the criteria used to eliminate certain alternatives, then it would be fairly easy to figure out mitigations (that would comply with the criteria). If the criteria are somewhere in this document they are not easily found by the reader.

Conclusions/Recommendations

This EIS was very thorough, encompassing writers from a variety of pertinent professions. The purpose and need of this project is made very clear from the beginning of the document, and for the most part appears to be fulfilled throughout the document. There are a wide range of alternatives provided, and the process as to how these alternatives were created is described. The part that is lacking, is a ranking of the criteria used to eliminate various alternatives to find a preferred alternative. Most of the tables and figures are effective, although more could be used than are

currently in the document. Many times there are values mentioned to prove a point, but the point would be more effective if shown in a graph or table. Since there are professionals writing the document, they may understand the values and how they apply, but the general public will most likely not understand them. Many of the sections state that there will be no significant impacts, which implies no need for mitigation. But, if there are no significant impacts, then there wouldn't be a need for an EIS, and a FONSI could be issued. As stated in the Need Section, there should be further research on the effects of post-fire conditions and activities that can be included in this document (by looking into similar post-fire conditions and any other practices of salvage logging). Then, the effects of salvage logging in this project should be monitored to provide information/data for future EIS documents similar to this one. The overall presentation of this EIS is very nice and the colorful pictures are attractive to the reader.

Summarized recommendations for this EIS include:

- Outline and discuss the criteria used for the alternative selection and use these criteria to justify the preferred alternative.
- Find any information on the effects of salvage logging and include as possible impacts. From this point, after the research is conducted, possible mitigation measures can be taken.
- Justify why the impacts of salvaging are negligible to the vegetation.
- Make sure that the document is addressed to the "general public".

This project area was being assessed over a number of years, and is finally going to see some restoration efforts. If the objectives of this project are met during the implementation stage, there will be many future generations able to enjoy this beautiful watershed.

6

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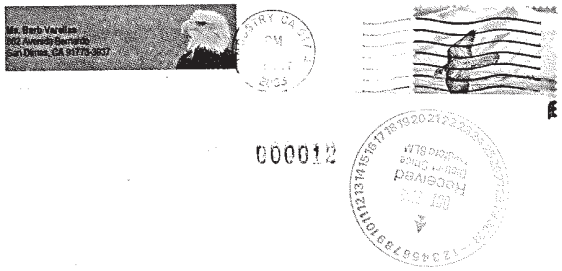

000012

Dear Mr. Nimmo

I am urging you to STOP the massive logging project in and around Timbered Rock.

There are significant environmental impacts of logging and this project would only contribute to hot fires.

Instead, please head in the opposite direction: STOP creating tree plantations; STOP logging down to 6 trees per acre (clear-cutting!)

Please PROTECT watersheds and old-growth forests; PRESERVE our environment and wildlands.

Sincerely,
Barb Varellas

7

000013

Monica Bond <mbond@biologicaldiversity.org>
10/13/2003 04:51 PM
Please respond to mbond

To: or110treis@or.blm.gov
cc:
Subject: Comments on Timbered Rock Project

Thank you for the opportunity to comment on the Timbered Rock project. Attached are my comments. I am also sending them by mail.

Sincerely,

Monica L. Bond
Staff Biologist
Center for Biological Diversity
P.O. Box 493, Idyllwild, CA 92549
(909) 659-6053 x304 (phone)
(909) 659-2484 (fax)

Timbered Rock Comments.p

CENTER FOR BIOLOGICAL DIVERSITY

Protecting endangered species and wild places through science, policy, education, and environmental law.

To: **Bureau of Land Management**
Comments, Timbered Rock DEIS
3040 Biddle Road
Medford, Oregon 97504

From: **Monica Bond, M.S.**
Center for Biological Diversity

Date: **October 13, 2003**

Subject: **Comments on the Draft Environmental Impact Statement for the Timbered Rock Fire Salvage and Elk Creek Watershed Restoration Project**

I appreciate the opportunity to comment on the Draft Environmental Impact Statement ("DEIS") for the Timbered Rock Fire Salvage and Elk Creek Watershed Restoration Project. Herein, I will discuss the potential effects of the proposed project on northern spotted owl habitat. To prepare these comments, I reviewed the Timbered Rock Fire Salvage and Elk Creek Watershed Restoration Draft Environmental Impact Statement and associated documents available online at www.or.blm.gov/Medford/timbrockEIS/timbered_rock_deis.htm.

I am a wildlife biologist with expertise in wildlife biology, ecology, and behavior. I hold a degree in Biology from Duke University and an M.S. degree in Wildlife Science from the Oregon State University. From April 1999 until December 2001, I was a research biologist on a major California spotted owl (*Strix occidentalis occidentalis*) demography study in the central Sierra Nevada conducted by Humboldt State University and University of Minnesota. Our research entailed estimating survival, fecundity, and population growth rates of a population of California spotted owls using capture-mark-recapture data, as well as investigating vegetative characteristics of nest and roost sites. Annually, we monitored over 30-40 spotted owl pairs and over 50 territories. I captured and banded adult and juvenile owls, determined reproduction by feeding mice and observing behavior, and measured habitat characteristics of nest and roost sites and random areas of the forest. I am directly knowledgeable about nest and roost characteristics of California spotted owls in the central Sierra Nevada, and I am familiar with the literature on habitat associations of all three subspecies of spotted owls throughout their range. In addition, our research team recently completed a study that was published in the Wildlife Society Bulletin entitled: *Short-term Effects of Wildfires on Spotted Owl Survival, Site Fidelity, Mate Fidelity and Reproductive Success*. I am the lead author on this manuscript, which included observations of post-fire survival, site fidelity, mate fidelity, and reproductive success of four pairs of northern spotted owls.

The DEIS is correct in stating that unanswered questions remain regarding how the spatial configuration of burns of various intensities affects spotted owl occupancy, foraging, and productivity

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(and I would add survival). I was impressed by the amount of pre-fire data on spotted owl demography and occupancy of sites that is available within the project area. With 13 active territories and six inactive territories within the burn perimeter, and with an extraordinary 18 years of owl capture-mark-recapture data, the Timbered Rock fire provided the ideal conditions to investigate and answer some of the questions on long-term impacts of wildfire on spotted owls. On the other hand, the threat of additional severe fire could result in loss of enough remaining suitable habitat such that spotted owls could cease to occupy the area. Therefore, I recognize the importance of conducting ecosystem restoration and undergrowth reduction projects to decrease the potential for unnaturally severe fire in the future.

With that in mind, I strongly support Alternative B, which proposes no salvage logging, and outlines focused restoration and fire-risk reduction projects including thinning trees less than 8 inches diameter. I also suggest that the research on salvage logging proposed in Alternative G (the preferred alternative) be applied instead to the investigation of long-term effects of wildfire on wildlife. I believe it is important to conduct research on the effects of salvage logging on wildlife; however, because wildfire is a natural and necessary part of forest dynamics and salvage logging is not (in fact, the Late Successional Reserve Assessment states that there is no ecological reason to salvage), I feel that research efforts and limited money would be better spent investigating the long-term impacts of wildfire on biological resources in the absence of salvage logging. This information is currently lacking because the BLM and Forest Service have a history of conducting salvage logging immediately after fire.

With respect to the preferred Alternative G, I found it disingenuous for the BLM to propose a research project with the potential to provide important data in 328 acres of salvage units, in conjunction with additional salvage logging of 1,051 acres outside of the research units. A total of 1,379 acres would be salvaged in experimental units and remaining units. The inclusion of the "remaining area" salvage in this alternative diminishes what might otherwise be a useful research proposal that would receive support from scientists like myself.

I. Wildfire Effects on Spotted Owls

a. Background Information

Some observational data are available regarding impacts of wildfire on the three spotted owl subspecies. The DEIS (on page 3-172) provides a very good starting-point regarding what is known about owls and wildfire. The discussion notes that owls are capable of returning to even highly altered habitat, pointing out that owls in northern California returned to four sites where the majority of the territory had burned. (Bond et al. 2002.) In addition, our manuscript included a literature review on impacts of fire on spotted owls. We described results from two cases in which large fires may have negatively impacted spotted owl occupancy. (Elliot 1985, Gaines et al. 1997.) Elliot (1985) did not find California spotted owls at an historic site after the Marble Cone fire in the Los Padres National Forest; spotted owls had been recorded around the China Camp campground for the four years prior to the fire, and were not detected again until the fourth year post-fire, and they were re-located in adjacent unburned habitat. Gaines et al. (1997) found that two of six fire-affected owl activity centers were re-occupied after the Hatchery Complex fires in Washington, and one site was reproductive. Other reports we cited in our manuscript have suggested that low- to moderate-intensity wildfires did not adversely impact California and Mexican spotted owl occupancy of areas. (Yasuda 1997, Scott 1998, Jenness 2000.) The Jenness study used standard survey protocols to show that Mexican spotted owls occupied burned sites. Scott (1998) found most Mexican spotted owl territories re-occupied after a

moderate burn in Arizona, and Yasuda (1997) reported a pair of California spotted owls fledging young within a prescribed burn in the Eldorado National Forest. In addition to studies cited in our manuscript, a study of four Mexican spotted owl territories that were burned in the Coffee Pot Fire in 1994 in the San Mateo Mountain Range in New Mexico showed all birds that were present before the fire remained in their same territories after the fire. (Stacey and Hodgson unpublished data.) These owls had been marked and fitted with radio collars. The Coffee Pot fire burned in a highly patchy manner – from low to high intensity – and left a considerable amount of unburned roosting and foraging habitat, similar to the Timbered Rock fire. A post-fire survey of Mexican spotted owls in the Gila National Forest (Gutiérrez et al. 1996; *Results of the Spotted Owl Surveys of the HB Salvage Area*) found that of three fire-affected owl territories that were occupied prior to the HB Fire in 1995, all were re-occupied the following year.

On the one hand, severe wildfire can decrease the suitability of northern spotted owl nesting and roosting habitat by removing overstory canopy and setting late seral-stage forests back to earlier seral stages. On the other hand, fire appears to be beneficial to fitness of northern spotted owls by creating ecotones that may improve foraging habitat. Franklin et al. (2000) found that survival of adult northern spotted owls in Northwestern California seemed positively associated with some level of interior mature and old-growth coniferous forest and edge between those forests and other vegetation types. Reproductive output was enhanced by convoluted edge with little interior habitat. In other words, it appeared that to achieve high fitness, a balance is struck between core owl habitat for maintaining high survival and a mosaic of older forest and other vegetation types for maximizing reproduction and maintaining high survival. (Franklin et al. 2000 at 579.) The authors noted that:

> "Two key questions are (1) to what degree are the mosaics observed in Northern Spotted Owl territories having a high fitness potential due to fine-scale fragmentation of mature and old-growth forests from disturbance; and (2) can logging practices mimic this fine-scale fragmentation? Current logging practices probably do not generate the type of mosaic that we observed in high-fitness territories; clear-cut logging leaves large, regularly shaped patches with clean edges. Fire disturbance, on the other hand, tens to leave smaller, irregularly shaped patches having convoluted edges. In addition, fire disturbance leaves a variety of seral stages based on the frequency of low, moderate, and severe burns over time. (Franklin et al. 2000 at 580.)

Results from these studies show that spotted owls do return and continue to occupy and reproduce in habitat burned by fire. In fact, fire may be beneficial to spotted owl fitness by creating a variety of seral stages over time. It is likely that past and current logging practices do not mimic the ecological effects of wildfire.

b. Adequacy of the Timbered Rock Project DEIS

According to the BLM, one of the purposes of the Timbered Rock project is to re-evaluate restoration and other actions to enhance or accelerate development of late-successional forest habitat conditions and increase resiliency to disturbance throughout the Elk Creek LSR. (DEIS Summary S1.2.3 at iv.) Northern spotted owls utilize large-diameter trees and snags for nesting, and nesting and roosting habitat consists of stands with higher canopy cover, live tree basal area, snag basal area, and downed woody debris than in randomly sampled forest stands. The studies described in the above section indicate that spotted owls "can and do exist with extensive fires of varying intensities…" (Weatherspoon et al 1992 at page 251.) This is likely due to the fact that wildfires, including the Timbered Rock fire, burn patchily, and spotted owls can continue to occupy burned areas because of a

network of moderately or lightly burned patches of suitable nesting and roosting habitat mixed in with the patches of habitat that experienced complete mortality.

i. *Spotted Owl Re-occupancy Predictions in the DEIS are Inadequate*

In Appendix N, the probability of re-occupancy is subjectively estimated for each of the 13 historically active territories within the perimeter of the burn, based on the amount of habitat considered to be unsuitable pre-fire versus post-fire. Most owl territories were predicted to be re-occupied. I disagree with the conclusion that the Miller Mountain territory is predicted to be inactive post-fire because about 54% of the suitable habitat was supposedly eliminated. Bond et al. (2002) found that in the four northern California territories (0.4 mile radius circle around the nest or roost sites) wherein the owl pairs returned and reproduced, three were 40% crown burned, and one was 50% crown-burned. In two of three cases in which >50% of the territory was burned by high-intensity fire, both members of a spotted owl pair returned the following year. Thus, it is possible that if about half the 390 acres surrounding the nest/roost sites were severely burned, the owls could re-occupy the site. Therefore, the prediction that Miller Mountain would be un-occupied following the fire seems somewhat arbitrary.

ii. *Tree Mortality Information in the DEIS is Inadequate*

In Appendix N, two territories were predicted to be unoccupied because 100% of the suitable habitat was ostensibly eliminated. If indeed literally 100% of the trees in both the Alco Creek and Shell Rock sites were killed by the fire, I would agree with determination that the probability of territory re-occupancy is low. However, the DEIS does not provide enough specific information on the definition of "severely" burned, or of "stand replacement" for me to assess the actual extent of tree mortality. The glossary (at page 3) and Appendix M at M-5 define a "high severity" burn as where "complete consumption of tree crowns has occurred, few or no needles or leaves remain on trees, and complete or nearly complete mortality has taken place." The DEIS (Summary S1.3.2.1 at vii) states that only trees that are considered "dead" would be salvaged. These definitions are subjective and inconsistent (e.g., "complete consumption of tree crowns" versus "nearly complete mortality"). What percent of the trees in a stand must have experienced mortality for the stand to be considered severely burned? What do "few" needles, and "nearly complete mortality" mean? The BLM provides no objective, quantitative method for determining whether a tree is dead. Is it a "dead" tree one that contains absolutely no green foliage? The stand exam procedure in Appendix D at D-3 notes that trees are coded as "12" (fire killed) or "13" (60% probability of mortality - include definition of dying trees graph). However, no dying trees graph was available in the documents. The Northwest Forest Plan Record of Decision regarding Late Successional Reserve guidelines states "all standing live trees should be retained, including those injured (e.g., scorched) but likely to survive." (Appendix A at A-7.) These quantitative data are important, because scientific studies have shown that trees with significant crown volume killed in wildfire can still survive and provide important habitat for spotted owls.

Ryan and Reinhardt (1988) studied post-fire mortality of trees shortly after wildfire, and subsequently monitored mortality up to eight years post-fire, noting that most mortality occurred in the first three years. The authors studied seven species of conifers, Douglas fir (*Pseudotsuga menziesii*), western larch (*Larix occidentalis*), Englemann spruce (*Picea engelmannii*), lodgepole pine (*Pinus contorta*), subalpine fir (*Abies lasiocarpa*), wetern red cedar (*Thuja plicata*), and western hemlock (*Tsuga heterophylla*). From Figure 2 at page 1294 (and extrapolating slightly outside the range of their graph), the probability of mortality for trees with thick bark is about 0.2 for 65% crown volume killed

and 0.6 for 90% crown volume killed immediate post-fire. The new growth of needles at the tops of trees with extensive needle kill in the lower crown is almost entirely on branches that had retained green needles after fire damage.

I also could find no quantitative definition of a "stand-replacement" event in the DEIS. It appears from the wording in the DEIS that the BLM means it to include areas that burned with high or moderate severity. See DEIS at 2-4 ("Alternatives C, D and G focus on high and moderate burn severity areas greater than 10 acres and less than 40 percent canopy cover where the fire resulted in a stand replacement event;" see also DEIS at 2-6, 2-36 and 3-185.) The DEIS Appendix M at M-5 defines moderately burned stands as where "trees may exhibit 40 to 80 percent mortality or more." First, no mention is made as to whether the trees that experienced mortality were predominantly understory or overstory. For example, a stand where 40 percent of the understory trees experienced mortality could easily support nesting or roosting spotted owls, and in fact may have improved nesting, roosting, and foraging habitat, depending on site-specific conditions. Second, as described above, it is unclear in the DEIS how tree mortality was determined. It is not appropriate to include moderately burned stands together with severely burned stands in a definition of a stand-replacement fire.

In sum, it is possible that if overstory trees in a stand contain green needles, they will survive the fire. If a number of overstory trees in a severely burned patch survived the fire, the stand may still contain some suitable spotted owl habitat -- at the very least, it could still function as dispersal habitat. The entire project area is designated as critical habitat for the northern spotted owl. The fire may not have destroyed all late-successional characteristics in severely burned stands (let alone moderately burned stands); thus spotted owls might still utilize the habitat. Therefore, salvaging the habitat could be construed as a violation of the Endangered Species Act which prohibits the "destruction or adverse modification" of critical habitat. If any post-fire activities are to be conducted to reduce risk of future severe wildfire in spotted owl habitat, they must focus on removal of small (<15 inch diameter) trees with 100% crown volume killed.

iii. *Discussion of Impacts of Fuel Management Zones on Northern Spotted Owls in the DEIS is Deficient*

In all of its action alternatives, the BLM is proposing 17 miles of 400 to 600-foot wide strips covering up to 1,300 acres to serve as fuel management zones in suitable northern spotted owl habitat, which is also critical habitat. The prescription for the FMZs in the unburned portion of the watershed is appropriate, in that the majority of conifers cut would be six inches diameter and less, or in some cases three to eight inches diameter. In the burn perimeter, however, "stand replacement areas less than 10 acres would be salvaged." (DEIS Chapter 2, 2.3.2.3 at 2-20.) It is likely that removing most of the habitat for along ridge tops is not beneficial for the spotted owl, especially since stand-replacement areas can include moderately burned habitat that could be suitable owl habitat. The DEIS admits that the FMZs in the project are likely to adversely affect the northern spotted owl in the short term, but that in the long term the FMZs would help reduce the risk of large stand-replacement fires in future decades. Scientific research is currently being conducted on the effects of fuel management zones on California spotted owls in the central Sierra Nevada (M. Seamans, personal communication), but little data are currently available. However, appropriate restoration projects that incorporate fuels-reduction activities such as undergrowth reduction and under-burning (including in Alternative B) should allow for the re-introduction of natural fire in the Elk Creek watershed. Thus, an extensive network of fuel management zones created via salvage logging of large trees and snags in potential spotted owl habitat may be unwarranted.

iv. *Information Regarding Slash Treatment in the DEIS is Inadequate*

The document contains no discussion on the amount of slash per acre that will be left on the forest floor under each alternative. The project design features in Appendix E at E-4 and at E-18 require that slash from salvage units and Fuel Management Zones be piled and burned, but does not state that the slash be treated at the time of tree felling. The Elk Creek Watershed Assessment in Appendix C at C-6 recommends treating slash 3 inches diameter or larger "soon after thinning activities are completed," although the Vegetation Assessment in Appendix K at K-6 recognizes that "light slash less than or equal to 3" in diameter is the primary carrier of fire." Forest Service studies show that the contribution of surface fuels (including dead trees once they have fallen over) to fire hazard becomes insignificant for logs over 8 or 10 inches in diameter. (Brown et al. 2003.) Total fuel loads well below 20 to 30 tons per acre in the size classes 0-3 inches diameter and 3-10 inches diameter combined would not be expected to present a major fire hazard. (See Id. at page 4.) It is unclear in the DEIS how much slash of all size classes will be left on site, and/or for how long.

These are critical issues because the increased risk of a very severe fire associated with removing larger-sized snags and logs and leaving logging slash and fine flammable fuels on the forest floor in salvage units can threaten the adjacent remaining roosting and nesting habitat. A September 8, 2000 report to the President entitled "Managing the Impact of Wildfire on Communities and the Environment" (at page 12) points out research from the Congressional Research Service that concluded "timber harvesting removes the relatively large diameter wood that can be converted into wood products, but leaves behind the small material, especially twigs and needles. The concentration of these fine fuels on the forest floor increases the rate of spread of wildfires." As per reducing fire risk via salvage logging, there is overwhelming scientific evidence that post-fire salvage logging does not reduce the risk of reburn. (See references in Beschta et al. 1995, Everett 1995.) Forest Service researcher Dr. Richard Everett (Everett 1995) stated that "there is no support in the scientific literature that the probability for reburn is greater in post-fire tree retention areas than in salvage logged sites." Dr. Steven Pyne, a professor in the biology department at Arizona State University, stated in a June 25, 2002 New York Times editorial that "what many areas need is a kind of woody weeding, which removes woody vegetation that has replaced natural grasses – but not logging, because the debris or slash left from clear-cutting is among the most hazardous fuels imaginable." Therefore, the purpose and need for any alternative that includes salvage logging in Late-Successional Reserves supporting numerous northern spotted owl territories is highly questionable.

II. Importance of Large Snags

a. Large Snags and Spotted Owls

Studies of spotted owl habitat selection repeatedly indicate that all three subspecies have a strong association with older forests for nesting, roosting, and foraging. (Forsman et al. 1984, Carey et al. 1990, Solis and Gutiérrez 1990, Call et al. 1992, Gutiérrez et al. 1992, Buchanan et al. 1993, Ganey and Balda 1994, Buchanan et al. 1995, Seamans and Gutiérrez 1995, LaHaye et al. 1997, Steger et al. 1997, Hershey 1998, Young et al. 1998, LaHaye and Gutiérrez 1999.) In general, these forests are characterized by an overstory of large (≥ 20 inch diameter at breast height) conifers, with a multi-layered understory of conifers and/or hardwood trees and shrubs, and decadence in the form of snags and coarse woody debris. When spotted owls occasionally inhabit previously logged conifer forests (Gutiérrez et al. 1992, Folliard 1993), residual old trees are often present, the current forest has structural characters similar to old forests, or microclimates are modified by marine climates or streams. The BLM has completely failed to demonstrate how removing medium- and large-sized live

trees and snags from moderate and severely burned areas would not harm the northern spotted owl and would actually aid in the "development of late-successional forest habitat conditions and increase resiliency to disturbance." These larger-sized snags provide the basis for restoration of late-successional forest conditions that will support future spotted owl nesting, roosting and foraging habitat. In fact, the guidelines for Late-Successional Reserves (Appendix A at A-7) note that "following stand-replacing disturbance, management should focus on retaining snags that are likely to persist until late-successional conditions have developed and the new stand is again producing large snags."

b. Large Snags and Other Wildlife Species

BLM documentation cursorily discusses the ecological effects of removing fire-killed trees on species that are largely dependent on burned forests. (see Hutto 1995, Caton 1996, Hitchcox 1996.) Hutto (1995) found that 15 bird species were more frequently detected in recently burned forest than in any other cover type available in the northern Rockies, and that several bird species seemed to be relatively restricted to early post-fire conditions, including the olive-sided flycatcher (*Contopus cooperi*), the mountain bluebird (*Sialia currucoides*), and, especially, the black-backed woodpecker (*Picoides arcticus*). A Forest Service publication (Finch et al. 1997) states "cavity-nesting birds, timber-drilling birds, granivores, and some flycatchers generally respond positively to burns in the short term because of increased nesting substrates and/or food supplies." In fact, some species such as black-backed woodpeckers may depend exclusively on severely burned forests for long-term population maintenance (Hutto 1995). These species may be adversely affected by the removal of fire-killed trees, yet little analysis is given to these species in the discussion of effects for the Timbered Rock project. The Effects Analysis for the Preferred Alternative G (DEIS Chapter 3 3.12.4.2 at 3-199 to 3-200) admits that "proposed salvage would reduce the amount of snags available for cavity nesters. Within the high burn severity stands, there would be little recruitment of large snags trees [*sic*] in the next 80-100 years, until the stands recover... Snag and coarse wood levels would be below the LSRA...recommendations... There would be a reduction in the amount of foraging, roosting, and nesting habitat for primary and secondary cavity users. Future coarse wood amounts would be reduced in the high and moderate burn severity areas." Perplexingly, however, the next sentence reads: "Effects from the proposed action would be very low," and the analysis goes on to note that scientific research would be proposed to investigate the influences of post-fire salvage logging on wildlife. Recommending research is not by any means an adequate analysis of the effects of the proposed action on burned forest-dependent species, nor is it a minimization of the adverse effects of the proposed action.

Hutto (1995), a researcher with the University of Montana and the Forest Service, noted that "unfortunately, we are not currently managing the land to maintain the kind of early successional seral stages that follow stand-replacement fires and, hence, many fire-dependent plant and animal species." He also states "managers who wish to mitigate [effects of a salvage cut] should be aware that bird species differ in the microhabitat they occupy within a burn. Selective tree removal…generally results in removal of the very tree species and sizes that preferred by the more fire-dependent birds." In other words, the loss of large dead trees from salvage logging in the Timbered Rock Project is likely to adversely impact species who utilize larger-sized burned trees for nesting and foraging. Raphael and White (1984) suggested that cavity-nesting birds in the Sierra Nevada needed at least 4.25 large (> 15 inch) snags per acre, but that it was necessary to retain four times that many to ensure the long-term maintenance of those snags on the landscape, for a retention level of 17 snags per acre. The Preferred Alternative G suggests retaining six snags per acre in the experimental units, and eight to 12 snags per acre in remaining salvage units (greater than 10 acres). Therefore, about four times the targeted

number of large-sized snags must be retained to achieve four well-decayed standing snags per acre in the long term, or 24 snags per acre in experimental units and 32 to 48 snags per acre in the remaining salvage areas.

III. Conclusion

The DEIS acknowledges that salvage logging in the Preferred Alternative G will diminish late-succcessional habitat suitability in the short and long term, and admits that adverse impacts to the northern spotted owl will occur in the short term. (DEIS at 3-187.) In addition, adverse impacts to species dependent upon severely burned forests would be adversely impacted in both the short and long term under the Preferred Alternative. If the purpose of the project is to rehabilitate the fire-damaged landscape and accelerate the development of late-successional forest habitat conditions, the best alternative to accomplish this goal is Alternative B. Alternative B proposes no salvage logging, and therefore retains important habitat elements for species dependent upon burned forest. Alternative B also proposes restoration and fuels-reduction projects to reduce the risk of future severe wildfire on this landscape, and therefore protects surrounding northern spotted owl territories and late-successional forest habitat. In addition, I suggest that research funding be used to study the effects of wildfire on biological resources in the absence of salvage logging.

Thank you for the opportunity to submit these comments.

Sincerely,

Monica L. Bond

Monica Bond, M.S.
Staff Biologist, Center for Biological Diversity

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000014

Susan Applegate <sapple@wmni.net>
10/13/2003 11:36 PM

To: or110treis@or.blm.gov
cc:
Subject: BLM Comments, Timbered Rock DEIS

Please accept my email letter as my formal public comment regarding the DEIS on the proposed Timbered Rock salvage logging project.
Surrounding this timbered area are miles of privately owned land which has been clearcut. Although much of the area was burned fairly substantially,--- approximately 1,300 acres of moderate burn, 428 acres white hot and 3,583 acres burned fairly cool and another 3,103 acres didn't burn at all, ---- this area lies within an LSR. The DEIS Preferred Alternative "G" would log within this LSR, which concerns me.
Late Successional Reserves are to be managed for older forest habitat and fire, as a naturally occurring agent, is part of the older forest cycle. Interferring with the natural events within an older forest habitat, (something that has been habituated for tens of thousands of years), is an obstruction to the intent of treatment and management within an LSR.
The Elk Creek LSR contains 18 Northern Spotted Owl activity centers with nests. We are very aware that the viable numbers of Northern Spotted Owls has steadily been declining throughout it's range. This logging proposal flies in the face of good science with regards to the needs and predilections of this endangered species and the congruency of habitat needs. The Timbered Rock planning area is also a Tier-1 Key Watershed designed to protect at-risk chinook, coho and steelhead.
I realize that the BLM is not necessarily concerned with adjacent lands in terms of planning logging projects, but our federal forest lands are the only ones left in somewhat intact condition. Please, please, take into consideration the entire landscape and see that protecting this LSR and not entering the burned area will do more for recovery than Alternative "G" provides. Please leave it to recover naturally.
Please, do nothing within these LSR's which does not improve the older-forest structure or improves habitat for wild fish in the Elk Creek watershed. The BLM should be very aggressive in survey for species listed under the Survey and Manage criteria of the Northwest Forest Plan.
In closing, I understand that it is very difficult to justify not logging in an area which has been burned and the timber industry has placed enormous pressure on our federal forests. But the management guidelines and designs for LSR's mandate plans which enhance, protect and consider forest values other than lumber. Wildlife habitat being among the most important. Please consider taking NO ACTION on the Timbered Rock.

Thank you,

Sincerely,
Susan Applegate, 4739 Elkhead Rd, Yoncalla, OR 97499 541) 849-3500

000015

"chaitna sinha" <chaitnasinha@hotmail.com>
10/14/2003 05:54 PM

To: or110treis@or.blm.gov
cc:
Subject: TIMBERED ROCL DEIS COMMENTS

Mr. Bergin
Enclosed please find comments submitted on behalf of the Northwest Environmental Defense Center in regards to the Timbered Rock Timber Sale. Please confirm that you received these comments by seding me an E-mail at your earliest convenience. Thank you for your time and consideration.

Sincerely
Chaitna Sinha

 TimberedRockComments[1].d

NORTHWEST ENVIRONMENTAL DEFENSE CENTER
10015 S.W. Terwilliger Blvd., Portland, Oregon 97219
Phone: (503) 768-6673 Fax: (503) 768-6671
www.nedc.org

Bureau of Land Management
Timbered Rock EIS Team
3040 Biddle Road
Medford, OR 97504

RE: Timbered Rock DEIS

Dear Mr. Bergin,

The Northwest Environmental Defense Center's (NEDC) purpose is to preserve and protect the natural environment in the Pacific Northwest. NEDC is very concerned about the proposed timber sale in the Medford District Elk Creek Late Successional Reserve. Our staff and members regularly utilize this area for a variety of purposes, and gain aesthetic recreational, scientific, and educational benefits from the Elk Creek ecosystem and its wildlife. These interests would be irreparably harmed by the proposed salvage-logging project.

NEDC has several concerns about the DEIS, including but not limited to: failure to substantively evaluate the cumulative impacts on the proposed alternatives, failure to comply with the Northwest Forest Plan, failure to document and provide evidence of scientific analysis, failure to address contradictory science, failure to adequately study the potential impacts on threatened and endangered species, and finally there are several significant issues the BLM simply did not consider. Without addressing these issues the BLM cannot fulfill its obligations under NEPA, the Northwest Forest Plan, and the Administrative Procedure Act. NEDC urges the BLM to address all of the concerns listed below in the Final EIS.

I. THE DEIS FAILS TO COMPLY WITH NEPA BY ADEQUATELY ADDRESSING THE CUMULATIVE IMPACTS OF THE PROPOSED PROJECT

A. The Bureau of Land Management (BLM) does not take a "hard look" at impacts of cumulative effects on the Elk Creek Watershed.

The Timbered Rock Fire Salvage and Elk Creek Watershed Draft Environmental Impact Statement (Timbered Rock DEIS) does not adequately consider the impacts of cumulative effects on the Elk Creek Watershed. Cumulative impacts are defined as "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" that occur

on public and private lands.[1] These actions "can result from individually minor but collectively significant actions taking place over a period of time."[2] The agency is required to take a "hard look" at these impacts.[3] The failure to address the impacts of cumulative effects can lead to termination of a project.[4] The Timbered Rock DEIS recognizes several areas of past actions that have impacted the Elk Creek Watershed. These include wildfires, timber management, and road density.[5] Absent from the DEIS is a thorough discussion of the impacts these actions have had, are having and will continue to have on the Elk Creek Watershed. NEPA requires that the BLM evaluate and analyze the cumulative impacts; simply listing the previous activities and their impact does not satisfy NEPA. This does not provide meaningful analysis. Additional impacts (such as those of the proposed project) on an already impacted environment are often times more severe and significant than the additional impacts alone. Failure to analyze the combined impacts violates one of the primary purposes of NEPA, to facilitate informed public participation.[6] The BLM fails to properly analyze the cumulative effects of the proposed project in violation of NEPA.

B. The Timbered Rock DEIS does not adequately analyze the cumulative effect of previous wildfires within the Elk Creek Watershed and Elk Creek Late Successional Reserve (LSR).

The Burnt Peak Fire burned 3,700 acres of the Elk Creek Watershed in 1987. The perimeter of the proposed project area encompasses a significant portion of the acreage burned by the Burnt Peak Fire. . As well, the DEIS notes "numerous small fires [that] occurred and were suppressed" in the Elk Creek Watershed but does not discuss the effects of suppression or post-fire activities.[7] If these effects were negligible, the DEIS must identify and discuss them. Cumulative impacts "can result from individually minor but collectively significant actions."[8]

C. The Timbered Rock DEIS does not adequately analyze the cumulative effect of previous timber management operations within the Elk Creek Watershed and Elk Creek LSR On Soils.

The Elk Creek Watershed is administered by a "checkerboard" ownership pattern. Approximately one-quarter of the watershed is administered by the BLM; over one-half by the United States Forest Service (USFS), and approximately one-quarter is reserved for industrial forestland. The Timbered Rock DEIS does not adequately discuss the cumulative effect of previous timber management activities on industrial forestland or USFS land. Citing the McIver and Starr report, the DEIS acknowledges, "Large-scale fire, prescribed or natural, in a mountainous terrain has similar effects on slope stability as large-scale timber harvesting."[9] Past

[1] 40 C.F.R. § 1508.7.
[2] *Id.*
[3] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 353 (1989).
[4] *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800 (9th Cir. 1999).
[5] *Timbered Rock DEIS*, 2-66.
[6] *League of Wilderness Defenders v. Zielinski*, 187 F. Supp.2d 1263, 1271 (D. Oregon 2002)
[7] *Timbered Rock DEIS*, 2-66.
[8] 40 C.F.R. § 1508.7.
[9] *Timbered Rock DEIS*, 3-12.

management activities, including timber harvest, are relevant to present management decisions. The BLM is required to examine the cumulative effect of past actions.[10]

The last entrance for timber harvest on BLM land within the Elk Creek Watershed occurred in 1986. However, skid trails remain from previously entered BLM lands of slopes less than 35 percent.[11] Skid trails increase soil erosion by concentrating and channeling running water. The DEIS states "water bars on these skid trails would mitigate concentration and channeling of running water."[12] No mention is made in the DEIS of water barring that has occurred nor is any mention made of water barring skid trials in Alternative G (Preferred Alternative). Furthermore, the DEIS postulates that "[t]he size of trees growing on a majority of these skid trails indicates compaction *may* not be a serious long-term impact from previous entries."[13] The suggestion that the situation may just take care of itself, coupled with the indefiniteness of the language in the DEIS concerning the long-term impacts of skid trails, does not constitute a "hard look."[14] The DEIS does not provide quantified or detailed information concerning past timber management activity.[15] Furthermore, the DEIS fails to adequately consider the combined impact of the proposed salvage operations and the proposed restoration impact.

D. The Timbered Rock DEIS does not adequately analyze the cumulative effect of prior levels of road density within the Elk Creek Watershed.

The Timbered Rock DEIS acknowledges prior levels of "high road density within [the] watershed" for "agricultural, residential, and timber management purposes" but fails to discuss the impact of prior high road density on the Elk Creek Watershed.[16] No mention is made of prior road building or road decommissioning efforts on private or public lands and the cumulative effect of such efforts. Road building has been identified as having significant negative impacts on watershed viability.[17] The DEIS fails to address the success of previous decommissioning efforts. Additionally, the DEIS does not adequately consider the environmental strains on wildlife, soil, and streams due to road building.

E. The Timbered Rock DEIS does not adequately analyze the cumulative effects of Fire Prevention actions and Post Fire Actions on the Elk Creek Watershed.

The Timbered Rock DEIS acknowledges the existence of recent activities that are affecting the Elk Creek Watershed. These activities include: efforts related to fire suppression and timber management operations on industrial forestland. However, the cumulative impacts of these actions are not adequately discussed in accordance with NEPA guidelines.[18]

[10] 40 C.F.R. § 1508.7.
[11] *Timbered Rock DEIS*, 3-22.
[12] *Timbered Rock DEIS*, 3-18.
[13] *Timbered Rock DEIS*, 3-22 (emphasis added).
[14] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 353 (1989).
[15] *Neighbors of Cuddy Mountain v. United States Forest Service*, 137 F.3d 1372 (9th Cir. 1998).
[16] *Timbered Rock DEIS*, 2-69.
[17] Beschta et. al. 1995.
[18] 40 C.F.R. § 1508.7.

Fire suppression activities occurring on private and public land during the Timbered Rock Fire included: construction of 22.6 miles of tractor line, 9.8 miles of hand line and 16 retardant drops totaling 38,800 gallons of slurry. While all control lines were rehabilitated to "contract standards or better," the DEIS does not discuss the relative success of rehabilitation efforts.[19] Additionally, the effect of retardant drops on the Elk Creek Watershed is not contained in the DEIS. The DEIS must address the effects of fire-fighting related activities.[20]

Data concerning present timber management operations is based on post-fire aerial photographs and limited field reconnaissance.[21] These cursory methods are not conducive to the acquisition of "quantified or detailed information" concerning cumulative effects required by NEPA.[22] The Timbered Rock DEIS analysis of the impacts is limited to a cursory statement "large-scale salvage operation occurred on burned areas on private lands."[23] The extent and nature of this salvage operation is not clearly defined. The DEIS later refers to a salvage operation that occurred on 5,725 acres of private, industrial forestland.[24] Whether this is the same salvage operation identified in aerial photographs and during the limited field survey is unspecified. Throughout the DEIS, references to the salvage operations on adjacent industrial forestland are rendered piecemeal and are, apparently, derived principally from visual observation. The DEIS lacks a concise, declarative statement on exactly what is occurring on industrial forestlands within the Elk Creek Watershed. By implication, the operation appears to be a clear cut: "[a] reasonable assumption for industrial forestland, confirmed by visual observation, is that all merchantable trees have been, or will be removed from these lands, including riparian areas."[25] The lack of clarity within the DEIS concerning the extent of current timber management operations does not "insure that the public has sufficient information to challenge the agency."[26]

F. The Timbered Rock DEIS does not adequately analyze the cumulative effects of future management activities on the Elk Creek Watershed on soils and mass waste incidents.

The Timbered Rock DEIS does not adequately consider the cumulative effects of future impacts on the Elk Creek Watershed. These impacts include: timber harvest or salvage operations within the Elk Creek Watershed and associated road construction operations. The BLM must consider "reasonably foreseeable future actions."[27] In accordance with the Medford District Resource Management Plan, "it is assumed industrial forestlands will be intensively managed with final harvest on commercial economic rotations averaging 60 years."[28] Additionally, an Environmental Assessment (EA) has been prepared for adjacent Trail Creek. A timber harvest would occur on 1,561 acres if approved.[29] Potential impacts of the Trail Creek timber harvest are not delineated. The DEIS does not discuss potential impacts of foreseeable

[19] *Timbered Rock DEIS*, 3-5.
[20] *League of Wilderness Defenders v. Zielinski*, 187 F.Supp.2d 1263,
[21] *Timbered Rock DEIS*, 3-12.
[22] *Neighbors of Cuddy Mountain v. United States Forest Service*, 137 F.3d 1372 (9th Cir. 1998).
[23] *Timbered Rock DEIS*, 3-12.
[24] *Timbered Rock DEIS*, 3-22.
[25] *Timbered Rock DEIS*, 3-22.
[26] *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1151 (9th Cir. 1998).
[27] 40 C.F.R 1508.7.
[28] *Timbered Rock DEIS*, 3-7.
[29] *Timbered Rock DEIS*, 3-6.

timber harvest operations on the Elk Creek Watershed, does not discuss the potential impacts of foreseeable timber harvest operations in conjunction with the effects of the Timbered Rock Fire and does not gauge the impact of associated road construction.

The Timbered Rock Fire burned 2,731 acres of USFS lands. Beyond stating that no salvage is anticipated on these lands, the DEIS does not discuss any other USFS management activities that could affect the Elk Creek Watershed.[30]

1. The incidence of mass wasting of soil would be affected by management activities.

The Timbered Rock DEIS acknowledges scientific opinion that management activities on burned soils should be prohibited or limited due to gross detrimental effects such operations have on soil.[31] When occurring in natural proportions, mass wasting delivers necessary sediment and debris to streams. When the soil has been severely disturbed due to fire or management activities, the incidence of mass wasting events increases to unnatural and unhealthy proportions and threatens the watershed integrity.[32] The DEIS acknowledges these facts: "[a] review of scientific literature indicates management activities (slash burning, timber harvesting, and associated skid trails,) or large-scale fires have a tendency to increase mass movement."[33] These effects endure for decades.[34] Finally, the DEIS acknowledges that 80 percent of the Elk Creek Watershed have been entered for timber harvest since 1970. Alternative G (Preferred Alternative) advocates salvage operations within the fire perimeter. This recommendation ignores recent scientific opinion and contradicts statements made within the DEIS. In a recent case the court determined that mere acknowledgement of contradictory science is insufficient, there must be some reasoned evaluation of the contradictory science.[35] The BLM is required to address contradictory science, and explain why it has chosen to use the specified science.

2. The incidence of mass wasting of soil would be affected by timber harvesting activities on private industrial forestland within the Elk Creek Watershed.

Evidence of salvage operations on industrial forestland is contained within the Timbered Rock DEIS. This information, however, is vague and unsubstantiated. A salvage operation "on these private lands includes a salvage harvest on approximately 6,000 acres, or 7 percent of the entire Elk Creek Watershed."[36] Whether operations are actually limited to these 6,000 acres is unspecified and fails to provide quantified and detailed information.[37] All told, 41 percent of the Timbered Rock Fire burned on industrial forestlands within the Elk Creek Watershed; the management plan for 34 percent of the Elk Creek Watershed on industrial forestland is unaccounted for. The 7 percent of industrial forestland within the salvage plan is undergoing extensive logging operations and "all merchantable trees have been, or will be removed from these lands, including riparian areas."[38] A significant portion of the Elk Creek Watershed,

[30] *Timbered Rock DEIS*, 3-6.
[31] *Timbered Rock DEIS*, 3-24.
[32] Beschta et. al. 1995.
[33] *Timbered Rock DEIS*, 3-24.
[34] *Timbered Rock DEIS*, 3-25.
[35] *League of Wildernes Defenders v. Forsgren*, 184 F. Supp.2d 1058.1067 (D. Oregon 2002)
[36] *Timbered Rock DEIS*, 3-26.
[37] *Neighbors of Cuddy Mountain v. United States Forest Service*, 137 F.3d 1372 (9th Cir. 1998)..
[38] *Timbered Rock DEIS*, 3-26.

already at an elevated risk of mass wasting due to the Timbered Rock Fire, is undergoing an apparent clear cut including fragile riparian areas. The hazardous effects of large-scale timber operations and large fires on mass wasting events, particularly within riparian areas, are noted within the DEIS and in current scientific literature.[39] The DEIS fails to weigh these effects.

3. The incidence of mass wasting of soil would be affected by road building and maintenance activities in the Elk Creek Watershed.

Seven miles of new road have been built on private lands within the fire perimeter since 2002. The Timbered Rock DEIS notes, "[s]ince the design and construction standards are not known, the effects cannot be assessed."[40] This statement does not constitute a "hard look" at the cumulative effects of road building.[41] The DEIS does cite a report designating "[r]oad building in steep mountainous terrain… as the single greatest cause of soil mass movement."[42] The potential effects of road building on private lands are not weighed by the BLM..

The DEIS identifies "numerous impending and existing road fill failures."[43] Insufficient road maintenance activities have been associated with an increase in mass wasting events.[44] The DEIS does not adequately relate the actual or potential increase in mass wasting events resulting from insufficient road maintenance to past and proposed management activities.

4. The incidence of debris torrents would be affected by post-fire activities.

The Timbered Rock DEIS makes unsubstantiated claims in regard to the lack of direct or indirect effects anticipated management activities would have on debris torrents. Alternative G (Preferred Alternative) provides for the construction of .25 to 1.5 miles of road along ridgetops and an area salvage of 1,379 acres on BLM land. Debris torrents, like mass wasting, are beneficial to streams and riparian areas when occurring in natural proportions. Large woody debris (LWD), boulders and gravels are delivered to the stream creating "complex stream systems."[45] However, the DEIS cites a study indicating timber harvesting and road building significantly increase the occurrence of debris torrents in a mountainous watershed.[46] When claiming that management efforts would not directly or indirectly affect the incidence of debris torrents, the BLM does not support the claim that salvage operations, including tractor yarding, helicopter yarding, and cable yarding, will not increase the rate of debris torrents with scientific data. Furthermore, the BLM admits that salvage activities will result in "severe [soil] disturbance."[47] The DEIS does not gauge the impacts of skid trials, skid roads, helicopter landing areas or provide conclusery evidence of how the construction of .25 to 1.5 miles of road will not have immediate and profound impacts on the incidence of debris torrents.[48] Finally, the

[39] Beschta et. al. 1995.
[40] *Timbered Rock DEIS*, 3-27.
[41] *Neighbors of Cuddy Mountain v. United States Forest Service*, 137 F.3d 1372 (9th Cir. 1998).
[42] *Timbered Rock DEIS*, 3-28.
[43] *Timbered Rock DEIS*, 3-14
[44] *Id.*
[45] *Timbered Rock DEIS*, 3-13.
[46] *Timbered Rock DEIS*, 3-14.
[47] *Timbered Rock DEIS*, 3-22.
[48] *Timbered Rock DEIS*, 3-14.

DEIS ignores the cumulative effect salvage operations on private industrial forestland will have on the incidence of debris torrents. Failure to rely upon explicit scientific sources to support management proposals is a violation of NEPA.[49]

G. The DEIS does not adequately evaluate the cumulative impacts of past sedimentation on stream quality

The DEIS indicates that the streams have been heavily inundated with sedimentation both pre-fire and post-fire. Yet the BLM fails to provide any concrete analysis of whether the proposed project will cause the streams to reach critical thresholds of sedimentation endangering water quality and temperature. Five sub watersheds have currently been delineated within the Elk Creek watershed. Pre-fire three streams in the Elk Creek Watershed were listed as 303(d) streams for temperature, and one was listed for dissolved oxygen.[50] An additional two streams were listed as streams of potential concern. Pre-fire management activities were adding 12,000 tons of sediment into the stream (4 times the natural background rate) annually.[51] Post-fire sediment levels are expected to increase by many orders of magnitude due to loss of vegetation and the litter layer. [52] Additionally, the DEIS states post-fire road density has increased and that an additional seven miles of new roads on industrial forest lands will increase the amount of mobile sediment. The DEIS also notes that under alternative G sediment would be likely to delivered to streams, but does not indicate the amount of expected sediment. Finally, the DEIS acknowledges that the fire has decreased the amount of woody coarse debris available, increasing the impact of sedimentation.[53] Despite listing factors indicating serious environmental impacts the DEIS never addresses how these past activities have impacted stream quality, nor does it discuss additional projects in the context of preexisting sediment. The DEIS fails to adequately evaluate the cumulative impacts of sedimentation, and the potential effects on water quality, or designated uses as required by NEPA. Of particular concern is whether this project will cause stream quality to exceed critical thresholds, preventing the stream from performing crucial ecosystem functions. In additional to violating NEPA, this project may entail violatiosn of the Clean Water Act (CWA). NEDC urges the BLM to evaluate the proposed projects compliance with the CWA and address this issue in the final EIS.

E. The DEIS fails to adequately address the cumulative effects of industrial logging on old growth species.

The DEIS states that, pre-fire, there were approximately 10,510 acres of suitable habitat for the northern spotted owl on BLM-administered land within the Elk Creek Watershed. Post-fire, however, approximately 2,887 of those acres became unsuitable for species that depend on late-successional habitat, such as the northern spotted owl.[54] The entire burn area and a vast majority of the watershed had been designated as spotted owl Critical Habitat, in which there are approximately 31 spotted owl activity centers. The 2,887 acres of critical habitat that changed from suitable to unsuitable will not become suitable for at least 60-80 years.[55] Any further

[49] *Sierra Club v. Bosworth*, 199 F.Supp.2d 971 (2002).
[50] *Timbered Rock DEIS* 3-47
[51] *Id.*
[52] *Timbered Rock DEIS* 3-50
[53] *Timbered Rock DEIS* 3-66
[54] *Timbered Rock* DEIS 3-171
[55] *Timbered Rock* DEIS 3-172

disturbances to the remaining habitat will significantly impact the species whether the disturbance result from further loss of habitat through harvest or human interference.
The DEIS states that spotted owls are mobile enough to disperse to adjacent LSRs, but fails to consider that substantial portion of these adjacent areas are located on private land that has already been harvested or is in the process of being harvested. [56]

F. The DEIS fails to adequately address the cumulative effects of industrial logging on cavity and down wood dependent species

The proposed project poses serious cumulative harms to cavity and down wood species. These cumulative effects are not substantively analyzed or addressed in the DEIS. Because most of the surrounding private industrial forest lands have been heavily salvaged very little suitable habitat for cavity dependent species remains on these lands.[57] Additionally past harvest practices including the removal of snags during harvest and extensive salvage programs, and fire exclusion have reduced snag numbers on federal lands.[58] The DEIS states that under proposed alternative G snag and coarse wood levels would be below the LSRA and DecAID recommendations, and that significant snags would not be available for 8-100 years.[59] The DEIS provides no analysis as to what the exact impacts would be on the cavity dependent species. Nor does the EIS address how the cumulative impacts would impact the cavity dependent species. This failure to analyze the cumulative effects is in violation of NEPA.

II. THE SCIENTIFIC ANALSYIS IN THE DEIS IS FLAWED AND VIOLATES NEPA

A. The DEIS fails to demonstrate the conclusions drawn are scientifically valid as required by NEPA

The BLM is required to provide accurate scientific analyses of the alternatives. The BLM is mandated to explicitly reference the scientific and other sources relied upon for conclusions[60]. In addition, lack of scientific analysis and citation strongly evidences "arbitrary and capricious determinations" in violation of the APA.[61] Throughout the DEIS the BLM makes significant scientific determinations without providing any reference or scientific basis upon which these determinations are being made. On DEIS 3-62 the BLM concludes that long-term intermittent streams would have some flow during part of the summer, but would not contribute enough to have affects on larger streams or contribute to additional increases in temperature. The BLM does not explain how it reached this conclusion, nor the science on which it based this conclusion on. On DEIS 3-187 the BLM states that if owls return to these sites, they would be impacted from removal of timber. The BLM goes on to state "the impact would be reduced by remaining nearby underburned suitable habitat." The BLM does not explain how it reached this conclusion and provides no scientific basis for this determination. On DEIS 3-88 the BLM states "Populations [fish] typically rebound in the short term from chronic and episodic disturbances. These are just a few examples of the lack of scientific support and analysis throughout the EIS.

[56] *Id.*
[57] Timbered *Rock* DEIS 3-172
[58] *Timbered Rock* DEIS 3-175
[59] *Timbered Rock* DEIS 3-199
[60] 40 C.F.R. 1502.4
[61] 5 USC § 52

The BLM does not explain how it reached this conclusion and provides no scientific basis for this determination. These omissions are too numerous to cite, and can be found in every section of the DEIS. As it stands, because of lack of scientific support and analysis the DEIS is fatally flawed, and is not likely to withstand either scientific or judicial[62] scrutiny.

B. The DEIS fails to adequately address the scientific impacts on cavity dependent species or explain why it contradicts its own scientific principles

The DEIS goes on to state that under proposed alternative G snag and coarse wood levels would be below the LSRA and DecAID recommendations, and that significant snags would not be available for 8-100 years.[63] Based on the LSRA and DecAID recommendations it is possible that snag retention at this level may cause critical harm to cavity nesting species. The BLM neither addresses this issue, nor offers any scientific research indicating that the extripation of cavity nesting species are not the likely result of alternative G. Rather, the BLM says this may be "useful scientific research." This is somewhat akin to pulling the legs off a grasshopper simply to determine it can no longer jump. Not only is the value of the scientific research in this case highly questionable, if the BLM is seriously contemplating actions that entail possible decimation of cavity nester species under NEPA more than a one and a half page statement is required. It is likely that an entirely separate EIS is necessary.

C. The DEIS violates regulations on incorporation and providing accurate scientific data

The BLM is prohibited from incorporating materials in the DEIS not easily available to the public.[64] The study of mass wasting in the Elk Creek Watershed conducted by the Boise Cascade Corporation is both referenced and relied on throughout the DEIS.[65] The Boise Cascade Corporation is a private corporation with no obligation to provide the public with information, nor is it easily accessible. This is exactly the type of incorporation that is prohibited. Additionally, the BLM's reliance on science from the timber industry is problematic. The BLM is obligated to provide scientifically accurate information and analysis in the EIS. [66] Boise Cascade has an economic interest in cutting timber, and the BLM should not simply embrace any scientific document produced by Boise. Rather, the Boise science should be evaluated under strict scrutiny for scientific accuracy and thoroughness. In this case, the BLM has no choice but to accept Boise Cascade's report, because the BLM has neglected to conduct its own research. Industry reports cannot and should not be substituted for BLM expertise. By accepting industry science without scrutiny, failing to conduct any research of its own, and failing to make the industry research publicly available the BLM is in violation of NEPA.

D. The DEIS does not consider alternative science in the analysis of soil productivity during and after salvage operations.

[62] *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208,1214 (9th Cir. 1998)
[63] *Timbered Rock* DEIS 3-199
[64] 40 C.F.R. 1502.21
[65] Timbered Rock DEIS 3-11 – 3-94
[66] 40 C.F.R. 1502.24

The BLM admits that salvage operations would have long-term negative impacts on soil productivity.[67] The temporal scale for the recovery of post-fire soil productivity is measured in decades. A management activity that would hinder recovery is in violation of the Northwest Forest Plan objectives of maintining natural ecosystems[68] Soil is vital part of forest regeneration. Additionally, the DEIS ignores available, alternative science.[69] The DEIS also notes that salvage operations on industrial forestland would have long-term, negative effects on the land but could be counterbalanced through the application of fertilizers.[70] This statement also stands in direct opposition to available, alternative science unconsidered by the DEIS on this matter. The Beschta Report states, as a general rule, post-fire application of fertilizers should be avoided due to prohibitive costs and unanticipated consequences.[71]

E. The Timbered Rock DEIS does not consider alternative science in the analysis of soil erosion during and after salvage operations.

The Timbered Rock DEIS cites several studies that aver salvage logging operations have negligible effects on soil erosion rates.[72] The DEIS does not consider alternative science in this matter as required by NEPA.[73] A well-circulated report suggests that logging in sensitive areas (e.g. recently burned areas), regardless of the logging method employed, *is* associated with accelerated soil erosion.[74] This report is ignored during the treatment of soil erosion in the DEIS. NEPA requires that the BLM "disclose responsible scientific opinion in opposition to the proposed action, and make a good faith, reasoned response to it."[75]

The DEIS admits that maintaining these burned stands will preserve habitat options as the stands slowly grow into late-successional/old-growth (LSOG) habitat. Further, the DEIS correctly states that the main factor needed to return these stands to late-successional forests is time (decades). *Id.* at 3-180. The DEIS proposes in options C-G to enter those sites despite the knowledge that such actions will only cause further harm to the spotted owl's already fragmented habitat. As justification, the DEIS relies on faulty science and questionable logic. The DEIS states that, if owls have abandoned the site, there will be no impact in terms of habitat degradation. *Id.* at 3-180. However, such "no impact" determinations are based on nothing more than a prediction because no surveys have been conducted post-fire. Additionally the DEIS's determination that the cumulative effects of the proposed activities would be minimal relative to the habitat degradation of the past year is ambiguous because it is uncertain to what habitat degradation the DEIS is referring. It would seem that the statement is referring to habitat degradation resulting from the Timbered Rock Fire. If that is the case, the comparison is irrelevant for the purposes of the DEIS. In analyzing cumulative effects, the DEIS should be drawing comparisons between the effects of no action and the proposed action instead

[67] *Timbered Rock DEIS*, 3-44.
[68] Standards and Guidelines C-11
[69] *Sierra Club v. Bosworth*, 199 F.Supp.2d 971
[70] *Timbered Rock DEIS*, 3-40.
[71] Beschta et. al. 1995.
[72] *Timbered Rock DEIS*, 3-34.
[73] *Sierra Club v. Bosworth*, 199 F.Supp.2d 971 .
[74] Beschta et. al. 1995.
[75] *Seattle Audubon Society v. Lyons*, 871 F.Supp. 1291, 1318 (W.D. Wash. 1994).

of attempting to mask the cumulative effects of the proposed activities behind the effects of the fire itself.

The DEIS states that surveys would be completed in green stands containing suitable goshawk habitat prior to implementing any projects, but two sentences later, the DEIS states that if the project is to occur outside the seasonal restriction (March 1- July 15) surveys would not be completed. *Id.* at 3-188. This seems to be a glaring inconsistency and appears to have the potential to serve as an enormous loophole through which activities could be proposed and implemented without any checks on the process.

III. THE DEIS FAILS TO COMPLY WITH THE NORTHWEST FOREST PLAN (NFP)

A. THE NFP prohibits salvage logging that will impairLate-Successional Reserves (LSR)

The NFP guidelines require that management following a stand-replacing event should be designed to accelerate or not impede the development of high quality habitat for species associated with late-succesional forest conditions.[76] The DEIS fails to explain how intensive salvage logging accomplishes these objective. The Beshta Report documents that to facilitate habitat quality "salvage logging must leave at least 50% of standing dead trees in each diameter class"[77] Alternative G would not achieve this standard. The Beshta Report advocates leaving all trees greater than 20 inches DBH[78]. Alternative G would leave only six snags per acre with DBH of 20 inches. The BLM offers no supporting science or explanation demonstrating alternative G will not impede development of high quality habitat.

B. The NFP prohibits conducting the proposed research project in an LSR

The NFP standards and guidelines specifically develop criteria for when research in an LSR is appropriate. The proposed research project does not satisfy the criteria. The NFP standards and guidelines state that research activities must be assessed to determine if they are consistent with Late-Successional Reserve Objectives.[79] The stated objective of LSR is to "protect and enhance conditions of late-successional and old-growth forest ecosystems, which serve as habitat for late-successional and old growth related species."[80] The proposed research project would involve intensive salvage logging within the LSR. In some areas, the proposed project requires clear cutting. In the majority of areas, 60-80% of the area would be salvage logged. Additionally, under alternative G limited harvesting would occur within a ¼ mile radius of owl activity centers.

Although the NFP allows research exceptions, these exceptions are limited, and should only be applied if there are no equivalent opportunities. Alternative G does not meet any of the exemption criteria. The stated purpose of the research project is to investigate wildlife response. The BLM does not explain why this cannot be done in another more appropriate area (such as an Adoptive Management Area Units.). Additionally, the standards and guidelines stresses that projects should test critical assumptions of the standards and guidelines. The BLM does not

[76] Standards and Guideline C-11
[77] Beschta at 8
[78] *Id.*
[79] Standards and Guidelines C-14
[80] Standards and Guidelines C-9

explain what standards and guidelines this project is designed to test. Nor does the BLM explain the necessity of clear- cutting within an LSR to support these tests. The proposed research project seems somewhat akin to pulling off the legs of a grasshopper only to discover it can no longer jump. This project is inappropriate for an LSR especially given that Adoptive Management Area Units are specifically designed for this kind of activity. In the DEIS the BLM must explain what the specific purpose and intent of the proposed research project is, and why it cannot be done in an AMA or other management unit.

C. Alternative G removes excessive quantities of salvage material in violation of NFP

The standards and guidelines specifically caution that because there is much to learn about development of species associated with LSR and their habitat, that only conservative amounts of salvage logging should be allowed.[81] Alternative G fails to adhere to this principle and exercises no constraint or conservatism. Alternative G is the only alternative that allows for wholesale clear cutting in some areas. This is completely contrary to the NFP Standards and Guidelines "conservative salvage" approach to management. The DEIS fails to address the violation of the NFP or provide additional scientific explanation justifying this action.

D. Alternative G violates the NFP by allowing salvage in Riparian Areas

The NFP standards and guidelines require that salvage logging only be allowed in riparian areas if necessary to attain Aquatic Conservation Strategy Objectives.[82] The DEIS fails to explain why under the proposed salvage logging in Riparian areas under alternative G is necessary to achieve aquatic conservation strategies. Indeed it would be almost impossible for the BLM to make such a claim given that it has not provided for riparian salvage in any other alternative.

E. Alternative G violates the NFP by failing to retain snags

The standards and guidelines of the NFP state "management should focus on retaining snags that are likely to persist until late successional conditions have developed."[83] Alternative G allows for only very minimal snag retention, 6 snags greater than 20 DBH per acre.[84] (This does not fulfill the purpose and intent of the guidelines.) The BLM admits that this may contribute to delays in development of late successional conditions by minimizing soil replenishment and nutrient cycling. The BLM further admits that the extent of the harm is unknown.

F. Alternative G violates NFP by allowing salvage that will diminish late successional forest habitat.

While priority should be given to salvage in areas where it will have a positive effect on late-successional forest habitat, salvage operations should not diminish habitat suitability now or in the future. "The 120 acres with 6 trees per acre retained would have reduced long-term coarse woody debris for late successional habitat, soil replenishment, and nutrient cycling on those acres as suggested by the LSRA and Dec-Aid Wood Advisor."[85] The best available science

[81] C-14
[82] Standards and Guidelines C-32 Tm-1
[83] Standards and Guidelines C-14 (3)
[84] Timbered Rock DEIS 2-36
[85] Timbered Rock DEIS 3-109

indicates that the preferred alternative would have negative impacts on both the long-term and short-term suitability of the habitat. This is in direct violation of the NFP.

IV. THE TIMBERED ROCK PROJECT WILL UNLAWFULLY DESTROY AND ADVERSELY MODIFY CRITICAL HABITAT FOR NORTHERN SPOTTED OWL IN VIOLATION OF THE ENDANGERED SPECIES ACT

The Endangered Species Act requires the BLM to insure that any action it authorizes, funds or carries out "is not likely…to result in the destruction or adverse modification" of critical habitat.[86] Salvage logging within critical habitat of the northern spotted owl inherently violates this requirements. The proposed research project will include areas that are heavily and moderately salvaged. Heavy and moderate salvage is clearly inconsistent with the BLM's duty under the ESA to prevent the destruction or adverse modification of critical habitat. Furthermore, creating permanent fuel breaks (i.e., Fuel Management Zones) within critical habitat will further degrade the value of the habitat to the owl.

Critical habitat for the northern spotted owl consists of a network of critical habitat units. Each unit was designated for a particular reason. If the BLM implements this project and logs within CHU OR-34, how will this impact the integrity of the network as a whole?

V. CONCLUSION

In conclusion, NEDC urges the BLM to reconsider the necessity of salvage logging. Significant scientific data demonstrates the forest and the dependent species will be better served by allowing natural recovery, with only limited thinning. If the BLM chooses to continue with this project it must provide an adequate EIS in compliance with NEPA, the NFP, the CWA and the APA. The BLM should pay particular attention to the cumulative effects of the proposed project. Because the current DEIS is fundamentally flawed and fails to comply with the law on several levels, it is unlikely that the FEIS will be able to address all of the above-mentioned issues without substantial revision and reevaluation. NEDC urges the BLM to comply with the law and address the above comments in the FEIS.

NEDC appreciates the opportunity to comment on this important project.

Sincerely

Chaitna Sinha
NEDC

Alexander Hayes
NEDC

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[86] 16 U.S.C. § 1536(a)(2)

FROM:
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TO:
Comments, Timbered Rock DEIS
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DATE: October 15, 2003

Subject: Timber Rock Fire Salvage DEIS comments and Information Quality Act request

Dear BLM:

Please accept the following comments from Oregon Natural Resources Council and Sierra Club concerning the Timber Rock Salvage and Elk Creek Watershed Restoration DEIS dated August 2003. The Timbered Rock Fire which forms the factual backdrop for this project was not unexpectedly destructive. This project is located within a natural fire area that burned less intensely than even the South Cascades LSR Assessment (LSRA) anticipated. The LSRA (p 116) anticipated that to maintain habitat conditions ≥75% of wild fires should be low-to-moderate intensity. The Timbered Rock fire was well within expectations with 90% very-low-to-moderate.

Fires are a completely natural (and even necessary) feature of western forest landscapes. Removing much of the biomass from the area after a fire is NOT natural. Salvage logging and road work:

- removes or damages many of the building blocks needed to build the future forest (soil, large wood, and habitat structures),
- disrupts many of the post-fire recovery processes (nutrient storage and cycling in down wood, falling snags that thin the young reprod, water storage in down wood, erosion control, etc), and
- alters the developmental pathways of the future forest.

The NEPA analysis failed to disclose the significant adverse effects of salvage on these building blocks and recovery processes.

The project area is designated as a Late Successional Reserve and Tier 1 Key Watershed under the Northwest Forest Plan. It is also located within designated critical habitat for the northern spotted owl and this is an "area of concern" that is important to connectivity between the Coast, Cascade, and Klamath Ranges. This area has the highest level of protection possible on federal forest lands short of designated wilderness. The BLM seems to have forgotten about the Northwest Forest Plan and the Endangered Species Act which designate this area NOT for timber production, but for natural processes that create and maintain late-successional old-growth habitat. Big dead trees are not only valuable as 2x4s but also as the building blocks for future forests.

This project looks too much like a Matrix timber grab that will only add to public mistrust. About half of the fire killed trees were giant trees over 36 inches in diameter. This is clearly what the BLM is after, but these are precisely the same trees that are most valuable to the future forest. These ecological giants are most likely to last a long time and provide valuable ecological structures and functions into the next stand.

This project must be withdrawn because the BLM has completely failed to manage in accordance with relevant requirements of the Northwest Forest Plan which require protecting and developing habitat for old growth and aquatic species. This is the kind of project that will generate outrage among anyone who knows the Northwest Forest Plan.

In fact, the gap between the preferred alternative and the applicable NWFP requirements is so glaring that we recommend that the Medford BLM increase their staff training budget and hire someone to explain to employees how to faithfully implement the LSR and ACS provisions of the Northwest Forest Plan and other legal requirements, such as the Endangered Species Act. One is almost left wondering if the BLM is purposefully planning this project knowing that it violates the law, and knowing they will get sued. But why? Who would this benefit? We can only guess that it may be part of an ongoing strategy by this administration to dismantle the Northwest Forest Plan and limit public involvement.

The BLM must remember that they already clearcut 19,000 acres of ancient forest in the Elk Creek watershed before it was designated as an LSR (EIS p 3-221). The timber industry got their turn, now it's time to protect and conserve habitat for fish and wildlife.

The BLM's preferred Alternative G involves:

- ~1,400 acres of aggressive salvage with minimal snag retention (6-12 tpa) including 328 acres of research,
- ~1,000 acres of roadside hazard tree removal;
- ~1,300 acres of fuel management zones (FMZs) where more salvage and 35 acres of commercial thinning will occur and "safety zones" will be built,
- 479 acres commercial thinning,
- 24.6 mmbf
- 912 acres pre-commercial thinning in LSR, plus 346 acres in riparian reserves,
- ~1,000 acres of "pine restoration" including 811 acres of commercial removal of trees up to 24 inches dbh.

- 1,544 acres of non-commercial restoration of oak and meadow habitats,
- 50 acres of large tree culturing for eagle habitat,
- 2.6 miles of road reconstruction,
- .8 miles of road construction,
- [undisclosed number of] new helicopter landings,
- 77 miles road maintenance or improvement,
- 36 miles of road decommissioning, including 13 miles in Riparian Reserves,
- 21 miles of road gated,
- 114 miles of seasonal road closures,
- [undisclosed] acres of tree planting

This ambitious project needs further NEPA analysis to fulfill the purposes of NEPA. As explained below, the commercial salvage as proposed is totally unsupportable and violates many legal requirements, while some of the other restoration efforts may be supportable if it is disassociated with salvage of large logs and if supported by further analysis.

1) The proposed salvage logging, hazard tree removal, yarding, landings, and road activities are in fundamental conflict with the **Northwest Forest Plan**, because proposed activities will not meet **LSR objectives** as set forth in the NFP ROD and the **South Cascades LSR Assessment**—
   a) Snag retention levels violate salvage guidelines in the NFP ROD, the South Cascades LSR Assessment, and the draft spotted owl recovery plan (3-199) which all require retention of all large snags to ensure snag and coarse wood habitat through time until the next stand begins to recruit significant numbers of large snags. In essence, the BLM is managing for year zero (the first few years after harvest is complete), when the law requires that they manage for year 100 by retaining enough snags to provide habitat for the next century, until the next stand begins recruiting large snags and coarse woody debris.
   b) The Northwest Forest Plan ROD is crystal clear that the focus of LSR salvage must not lose sight of the *long-term* objectives of the LSR to provide "*high quality*" late-successional old-growth habitat (DEIS A-7, NFP ROD C-14). The EIS (2-60) makes an unsupported conclusion that salvage will have a negligible effect on late-successional old-growth habitat. In analyzing the effects of salvage logging on the future development of late-successional old-growth habitat the DEIS completely fails to address two critical issues:
      i) **The temporal dimension of snags and down wood**. The minimal snag retention being proposed in salvage area will fail to meet habitat requirements as soon as a few of the retained snags fall down. In order to ensure compliance over time the BLM must retain abundant large snags so that some of them will stand until the next stand begins to recruit new large snags.
         (1) Large snags last much longer than small snags, therefore large snags are disproportionately valuable as wildlife habitat, nutrient and water reservoirs, soil stabilizers, etc.
         (2) The NFP ROD clearly requires the BLM to manage for future coarse woody debris and snag levels similar to naturally regenerated stands, and

requires BLM to account for the full period before the new stands begins to contribute snags and CWD. (A-7) Page 3-109 focuses too much on the short-term and fails to discuss any long-term impacts of salvage on quality LSOG development.

(3) The EIS (3-190) indicates that material >16 inches may persist until the next stand, however, these medium and large snags are exactly what the BLM is proposing to remove in this proposal, and they are leaving behind the small material (<16") that will NOT persist.

(4) Deviations from the NFP salvage guidelines should not violate the intent of the guidelines. (A-8)

(5) The draft spotted owl recovery plan (p 115) indicates that 17 of the largest Douglas fir and 9 of the largest hemlock snags per acre must be retained in the western Oregon Cascades.

(6) The DEIS misuses the DecAID decision support tool. The EIS relies on DecAID to analyze impacts on snag dependent species, but the EIS fails to recognize that "DecAID is NOT: … a snag and down wood decay simulator or recruitment model [or] a wildlife population simulator or analysis of wildlife population viability. … Because DecAID is not a time-dynamic simulator … it does not account for potential temporal changes in vegetation and other environmental conditions, … DecAID could be consulted to review potential conditions at specific time intervals and for a specific set of conditions, but dynamic changes in forest and landscape conditions would have to be modeled or evaluated outside the confines of the DecAID Advisor " Marcot, B. G., K. Mellen, J. L. Ohmann, K. L. Waddell, E. A. Willhite, B. B. Hostetler, S. A. Livingston, C. Ogden, and T. Dreisbach. In prep. "DecAID -- work in progress on a decayed wood advisor for Washington and Oregon forests." Research Note PNW-RN-XXX. USDA Forest Service, Pacific Northwest Region, Portland OR. (pre-print)
http://wwwnotes.fs.fed.us:81/pnw/DecAID/DecAID.nsf/HomePageLinks/44C813BC574BDFCC88256B3E006C63DF ("The inventory data likely do not represent recent post-fire conditions very well … young stands originating after recent wildfire are not well represented because they are an extremely small proportion of the current landscape … The dead wood summaries cannot be assumed to apply to areas that are not represented in the inventory data." "DecAID caveats"
http://wwwnotes.fs.fed.us:81/pnw/DecAID/DecAID.nsf).

(7) Instead of using the more conservative 80% species tolerance thresholds, the EIS uses DecAID's lower 30-50% species tolerance thresholds which is totally inappropriate in a LSR. The fact that DecAID also considers snags down to 10 inches in diameter is further evidence that this tool was not designed to address post-fire situations where such small snags and logs will not persist long enough to be useful in the long term.

(8) The EIS failed to consider the differing fall rates of large vs. small snags see: "Snag Dynamics in Western Oregon and Washington," Janet L. Ohmann, July 26, 2002

http://wwwnotes.fs.fed.us:81/pnw/DecAID/DecAID.nsf ("Snag fall rates in undisturbed stands were substantially lower for the largest snags … These findings have several implications for planning for desired future conditions of snags. The high fall rate (almost half) of recent mortality trees needs to be considered when planning for future recruitment of snags and down wood. Trees that fall soon after death provide snag habitat only for very short periods of time or not at all … Our findings suggest that snag size (DBH) and species should be considered when identifying particular snags to retain in harvest units. The larger the snag diameter, the more likely it is to survive harvest operations and remain standing in future years. [93% of snags ≥100 cm dbh remained standing over the 10 year study period.])

ii) **The effect of salvage on the quality of future LSOG habitat.** Large snags and down logs provide structural "legacies" that contribute to habitat complexity (and other ecological processes) that are critical to the development of *high quality* complex LSOG. To put it simply, an unsalvaged area will develop habitat of higher quality than a salvaged area.

(1) Snags and down wood provide a bridge from one stand to the next. Snags and down wood alter the microclimate and light environment, store water, mediate soil and fuel moisture levels and nutrient dynamics, provide substrate for beneficial fungi, help trap soil and sediment, create favorable microsites for seed germination, provide habitat for animals large and small, serve as nurse logs, and play an important role in thinning young regenerating stands as snags fall down.

(2) The EIS fails to recognize the multi-faceted value of dead wood as presented in recent publications such as: Rose, C.L., Marcot, B.G., Mellen, T.K., Ohmann, J.L., Waddell, K.L., Lindely, D.L., and B. Schrieber. 2001. Decaying Wood in Pacific Northwest Forests: Concepts and Tools for Habitat Management, Chapter 24 *in* "Wildlife-Habitat Relationships in Oregon and Washington" (Johnson, D. H. and T. A. O'Neil. OSU Press. 2001)
http://www.nwhi.org/nhi/whrow/chapter24cwb.pdf and Bruce G. Marcot, ECOSYSTEM PROCESSES RELATED TO WOOD DECAY, 10 February 2003
http://wwwnotes.fs.fed.us:81/pnw/DecAID/DecAID.nsf/HomePageLinks/F2D470EA4C328EF488256BF4006D5284

(3) The EIS does not recognize the fact that salvage logging will simplify the regenerating stand and make it less likely to develop into complex older forests. Page 3-103 says that the alternatives differ in *the rate of attainment* of late-successional old-growth, but the EIS does not discuss the differing *"habitat quality"* that will be developed by the alternatives. Salvage areas will be deprived of important legacies from the prior stand and develop *lower quality* LSOG.

(4) Trees that survive the fire are an essential contributor to the quality of the current and future habitat. Live trees can help fill the critical gap in the

temporal distribution of snags in the decades after a fire. The BLM proposes to leave live trees, however:

(a) The EIS does not define live and dead trees, and experience shows that salvage always involves removal of live trees that are determined to be dying. The BLM has not define live or dead or dying trees.

(b) Even if dying trees will be retained, felling, yarding, and removing the dead trees will kill or harm the remaining live trees through root and cambium damage.

(c) The EIS failed to consider information such as Franklin, J.F., K. Cromack, Jr., W. Denison, A. McKee, C. Maser, J. Sedell, F. Swanson, and G. Juday. 1981. Ecological characteristics of old-growth Douglas-fir forests. PNW-GTR-118. USDA Forest Service. PNW Research Station. February 1981.
http://www.fs.fed.us/pnw/pubs/gtr118part1.pdf
http://www.fs.fed.us/pnw/pubs/118part2.pdf ("... implications for management of old-growth stands selected for perpetuation. Salvage logging is inappropriate since it removes at least two of the major structural components-dead and down-that are key elements of the system. In all likelihood, some of the more decadent, live trees would also be removed. Salvage logging is also inappropriate because of the damage inevitably done to root systems and trunks of the residual stand which results in accelerated mortality of trees and overall deterioration of the stand.")

(d) EIS page 3-38 fails to recognize that ripping of skid trails will damage symbiotic soil fungi and the roots of residual trees that are so important in this post-fire landscape.

(e) Salvage logging will retard the development of quality habitat. Recovery has already started. Salvage will kill many young plants that have already germinated or sprouted from root-stocks. Soil has already began to stabilize and collect behind down woody debris. Salvage will dislodge these soil accumulations and move them toward streams.

(f) The homogenous stands that result from salvage activities will require future entries such as thinning in order to add diversity and complexity characteristic of late-successional old-growth. These future entries will cause future disturbance of soil and wildlife and will require that harmful roads be maintained unnecessarily. There is also uncertainty whether funds will be available in the future to conduct those activities. Natural regeneration without salvage is much more likely to leave a stand that is self-maintaining. Regen will start out very patchy, diverse, and structurally complex, and falling snags will thin the next stand naturally.

(g) The BLM should address the values of live trees as described in "Residual Trees as Biological Legacies," CCEM Communique #2. Sept. 1995. http://www.fsl.orst.edu/ccem/pdf95Com.que.pdf

e) LSR Assessments are to identify "criteria for *appropriate* treatments" (NFP ROD page C-11). Treatments that do not meet these pre-defined criteria are therefore

presumed to be "inappropriate." The commercial removal of large snags and other impacts on the LSR therefore inappropriate.

d) Chapter 4 of the South Cascades LSRA (left out of the DEIS for some reason) establishes the "desired future condition" (DFC) of the South Cascades LSR. This official DFC for this LSR includes: structural components (e.g. snags and live trees) that will support the functions and processes of late-successional old-growth, large trees and large snags, patchy understory, large woody material, diverse vegetation structure and pattern, snag levels high enough to maintain species diversity and site productivity, high amounts of source and refuge habitat for late-successional old-growth species. (LSRA page 113-114). The LSR salvage guidelines in the NFP ROD require the BLM to focus on this desired future condition (A-7). Under this DFC, the LSRA anticipates only "very conservative amounts of salvage" (B-28).

e) The LSRA sets forth a clear method of analysis for determining the median live tree density for the plant series and considers salvage of the material in "excess" of these "typical" levels. (B-29 to B-31). The EIS lacks any such an analysis. When the BLM finally does this analysis it must be based on basal area, NOT trees per acre.

f) The LSRA (B-29) urges retention of material that is likely to persist into late seral stages, i.e. ≥16 inches in diameter.

g) The LSRA urges the use of small patch cuts or group selection limited to 20% of the area of stands with less than 40% canopy closure (B-30). This requirement is clearly not met, but that analysis is also lacking.

h) The LSRA requires that patch cuts or group selection be small, e.g. 5 acres, not 50 acres (B-31).

i) The LSRA (B-32) urges the retention of "mostly the larger diameter material" keeping in mind the objective to retain habitat for small mammals; *citing* Carey, A.B. and M.L. Johnson. 1995. Small mammals in managed, naturally young, and old-growth forests. Ecological Applications, 5(2), 1995, pp.336-352. The BLM is proposing to do just the opposite— take the largest and leave the smallest.

j) The LSRA requires the consideration of "other factors" and urges the retention of snags on the bottom 1/3 of slopes, and north and east aspects (presumably where they are more likely to last the longest) (B-32).

k) The LSRA limits salvage to 1% of the LSR by administrative unit (200 acres for the Medford BLM). This project involves seven times the allowed amount, not including roadside hazard tree removal and an undisclosed amount of salvage within the fuel breaks.

l) Removal of large snags will remove essential structural components needed to meet this desired future condition. Soil and water impacts associated with salvage and roads will also conflict with this DFC. The DEIS failed to explain how salvage was designed to meet this DFC. Each harvest unit should be justified by an explanation of how it will help attain this DFC (or at least not retard DFC attainment).

m) The LSRA (B-11) says that volume production "not, in itself, one of the objectives" of salvage, but there can be no mistake that "economic recovery of fire killed trees" is THE driving factor behind this project (1-4, 1-6).

n) The proposed salvage will create large (>10 acre) patches virtually devoid of trees and snags. The South Cascades LSRA recommends "small patches" (≤5 acres) or group selection. The EIS (3-218) does not address this issue of patch size.
o) The EIS (3-229) makes a false statement that the proposed salvage will "protect long-term productivity." Proposed activities, especially commercial log removal, will violate requirements to maintain long-term soil productivity. Soil compaction and erosion, loss of coarse woody debris, and erosion all adversely affect long-term productivity. Removal of 55-63% of the organic matter through salvage of large trees will adversely affect soil productivity for decades or centuries. (3-38, 3-41, 3-42, 3-44).
   i) Two hundred and twenty acres of soil compaction in an LSR violates the Northwest Forest Plan requirement to maintain long-term site productivity. (2-56)
   ii) The EIS admits that the logging will adversely affect long-term soil productivity (p xix). This will have a direct negative effect on LSR development.
   iii)
p) All the commercial removal activities will impede development of high quality LSR habitat in violation of the NFP ROD (A-7) and violate the requirement to focus LSR salvage on long-term LSR objectives. Salvage logging that removes most of the large material from extensive areas will prevent development of complex young forest reduce options to develop complex old forest,
q) Proposed activities, especially commercial log removal, will violate the requirement to maintain optimal late-successional habitat, (such as reducing cavities nesting opportunities for spotted owl prey such as flying squirrels and reducing woody debris far below optimal levels for spotted owl prey species),
r) Proposed fuel breaks will violate the prohibition on salvaging patches less than 10 acres (in FMZs that will end up being ineffective because they are discontinuous in this checkerboard landscape and because the FMZs are unlikely to be maintained in the long-term so they will end up neglected and full of ladder fuels, and FMZ will have CWD reduced below optimum and this adverse condition will be maintained in the long-term)
s) Hazard tree removal will violate NFP ROD requirements to consider cutting and leaving roadside hazard trees in place. The EIS fails to address the "degree and direction of lean," even though these are important factors according to OSHA.
t) The proposed action retains far too few large snags. The BLM appeared not to consider the full time span between the fire and the time that the fire area will recruit significant numbers of new snags into the stand. The BLM is managing snags for the present when they must be managing snags for the period 100 years in the future. The agency must retain all large snags because they are the most likely to last the longest and fill the snag recruitment gap as the post-fire landscape recovers from the fire.
u) The so-called "brain book" that agency staff use to clarify the direction in the Northwest Forest Plan ROD urges the agency to use the requirements from the Draft Recovery Plan for the Northern Spotted Owl which requires retention of all scorched trees that "may live" as well as all snags over 20 inches because these

live trees and larger snags are most likely to last more than 100 years and help to fill the temporal gap in snag recruitment as the post-fire stand develops.

Denton K, 1994. "SEIS Team/Scientific Analysis Group Qs &As [Summary]" May 6, 1994 ("[T]hese responses represent what the SEIS Team intended for many of the standards and guidelines… The following document is a compilation of those SEIS Team questions ands SAG responses that relate to standards and guidelines contained in the final Record of Decision.").

> "**Salvage in LSRs to Reduce Fire Risk** (SAG2;Q#9): Under Alternative 9, is salvage [in Late Successional Reserves] permitted to reduce fire hazard or risk? How and who defines acceptable risk?
> "SAG response: Salvage can be used to reduce risk throughout the range of the owl based on the salvage guidelines adapted from the final draft recovery plan. Silvicultural prescriptions can be used to reduce risk in areas subject to large scale disturbance (east side) using guidelines for reducing large scale disturbance adapted from the final draft recovery plan. (S&Gs pages C-13 and C-12)"
>
> The April 1992 "Spotted Owl Recovery Plan – Draft" salvage guidelines recognize the value of snags to stand development, and provide habitat for several owl prey species. The draft recovery plan recommends:
> (i) retention of all snags in areas with more than 40% canopy closure, (p 113)
> (ii) retention of all scorched trees that "may live," (p 113)
> (iii)retention of all snags and CWD likely to last 100 years to provide the "maximum benefit" for flying squirrels (p 113-114),
> (iv)retention of snags larger than 20 inches "will be retained" (p 114),
> (v) The recovery plan also says salvage to reduce risk should be "minimal."
> (vi)As an example, the plan applies these guidelines to the western Oregon Cascades and recommends retention of 17 of the largest Douglas fir and 9 of the largest hemlocks, and allows salvage of 17 small (4-20 inch) Douglas fir and 33 small (4-20 inch) hemlocks (p 115-116).

2) The proposed salvage activities are in fundamental conflict with the Northwest Forest Plan **Aquatic Conservation Strategy** objectives, especially because proposed logging, yarding, soil ripping, helicopter landings, safety zones, and road activities will—
   a) cause soil erosion and sedimentation (2-70, 3-35, F-6). For instance, road use will cause sediment to enter streams, which will reduce aquatic insect abundance, which will adversely affect fish. (3-83),
   b) Chronic lack of large woody debris does not support complex aquatic habitat structures, functions, and processes including: pools, gravel retention and storage, stream energy dissipation, side-channels, cover, winter refugia, and substrate and nutrients supporting organisms of all kinds.

c) fires are a primary mechanism of large wood recruitment to streams (3-79). Removal of large quantities of large wood will limit recruitment of large woody to streams that are already severely degraded in terms of large wood and the aquatic habitat complexity it provides, (3-49, 3-68,) If the large trees are retained they may some day be delivered to streams via landslides, but if the large snags are removed they will never reach streams.
d) The EIS says that fish populations are adaptive and resilient (3-78) but fails to consider that the existing highly degraded condition of aquatic habitat due to fire, roads, and past logging does not allow fish to fully realize its adaptive capabilities The Elk Creek Watershed Analysis page IV-2 indicates that human activities have reduced the amount of high quality habitat and reduced fish survival rates.
e) the DEIS analysis inappropriately relies on the filtering effect of riparian buffers (3-34, 3-75, 3-83) that are up to 80% burned (3-50, 3-119) and will very likely NOT filter sediment to the degree found in studies involving unburned riparian buffers (3-58). To be effective, riparian buffers need healthy vegetation, coarse woody debris, and adequate cover of litter and duff, all of which have been significantly reduced by the fire.
f) Some riparian areas on private land located below BLM salvage areas will not function to filter sediment both because of fire effects and subsequent disturbance from private land salvage logging.
g) Channel morphology and LARGE WOODY DEBRIS recruitment will be adversely affected by 14 acres of logging in riparian reserves (3-66, 3-69),

3) The proposed salvage activities are in fundamental conflict with the **Endangered Species Act** requirements, especially because logging, yarding, road activities and other activities will—
   a) "likely adversely affect" as well as "take" listed spotted owls in a critical habitat unit (3-172) and coho salmon,
      i) populations of owl prey species were temporarily depressed by the fire (3-171) but salvage logging will prolong that effect by reducing CWD which supports ground-dwelling owl prey and salvage will reduce snags which provide cavity nesting opportunities for owl prey species like flying squirrels (3-200).
      ii) Page 2-42 of the DEIS indicates that coarse woody debris will be retained at only 2-3.6% ground cover under the preferred alternative. This is far below optimal for spotted owl prey species. This violates the objectives for Late Successional Reserves as well as the ESA requirements for critical habitat. This also represents a "take" of spotted owls because owls could be weakened or even starve to death due to reduced food supplies.
      iii) salvage and road activities will cause erosion and sedimentation, reduce fish prey species such as aquatic insects.
      iv) The EIS uses an inappropriate baseline to describe the effects on fish populations. The EIS describes the effects on fish within the context of the "historic range of variability" rather than with reference to the no action alternative (3-85). The relevant question is not whether fish will be "maintained" within the HRV, but whether fish are likely to be *adversely*

affected by salvage compared to the no action alternative. The EIS must reanalyze effects to fish.
      v) salvage will reduce recruitment of large wood to stream and thereby reduce habitat complexity that supports the varied life-cycle requirements of listed fish.
   b) Proposed activities will violate prohibition on destruction and adverse modification of designated critical habitat. Page 129 of the Draft Spotted Owl Recovery Plan recommends that FWS use the guidelines set forth above for salvage within DCAs to determine whether actions are likely to destroy or adversely modify critical habitat. Under this standards the violation is obvious.
   c) Page 167-168 of the draft Recovery Plan states that the Timber Rock project area (called OD-17 in the recovery plan) is an "area of concern" for the spotted owl. This area is important for linking owl populations in the Coast, Cascades, and Klamath Provinces so BLM must be give "special management emphasis" to protect owl habitat.
   d) The in the final notice FWS defined "adverse modification" of spotted owl critical habitat as any activity that would "impair survival and recovery" so proper management involves protecting the CHU's ability to "contribute fully to recovery" (N-5). The BLM salvage proposal directly impacts spotted owl prey species and owl foraging opportunities and the loss of legacy structures will significantly reduce the quality of the future owl habitat within the CHU.
   e) The Jan 15, 1992 Federal Register notice which published the final rule designating critical habitat for the spotted owl states that CHUs were intended to "preserve options for eventual species recovery" (N-5). This is far more conservative standard than just avoid "jeopardy," but the EIS does not reflect this conservative approach to management of CHUs.
   f) According to the FWS in its CHU designation emphasis of CHU management is to develop spotted owl habitat characteristics (N-5) (which include large wood legacies that bridge succeeding stands), but the BLM is removing almost all the large wood from large areas and destroying these bridges.
   g) Salvage and other logging activities violate critical habitat requirements to "preserve options for recovery."
   h) The Draft Spotted Owl Recovery Plan (P 417) states, "Salvage may occur in those instances when it has been determined through review procedures that salvage is necessary to reduce or eliminate an adverse effect on owl habitat." This review and determination has not taken place.
   i) The EIS depicts the effects of salvage on owl habitat only within relatively small owl activity centers (3-168). Page 3-180 says that if the owl do not show up to us ether recently used owl centers in 2003, then those sites have no use to owls. This assumption is totally unsupported because:
      i) The owls may more to a new center but still use their old activity center for foraging.
      ii) The owls may move away temporarily but use those areas again in the future.
      iii) Salvage will degrade the suitability of these sites for owls in either case.

j) The EIS (3-180) recognizes the value of retaining legacy structures but only within owl centers, but fails to disclose and analyze the value of legacy retention outside of owl centers. The BLM appears to have forgotten that this is an LSR and a CHU. The BLM fails to consider:
   i) that owls forage in areas outside of owl centers. Owls defend and use large territories for foraging etc. The EIS does not disclose the significant adverse effects of salvage on foraging opportunities outside of owl activities centers, i.e. throughout the LSR.
   ii) that owls may move their territories. Owls may move to nest or forage in new areas within the fire, likely even areas that are planned for salvage.
k) The BLM and NOAA both made arbitrary and capricious findings of NLAA fro Oregon coast coho and failed to formally consult. The DEIS admits adverse effects on coho, but still finds it NLAA. (2-59, 2-60).
l) Page 3-92 makes an unsupported statement that salvage will improve aquatic habitat complexity. This page also says that At. G will "improve road erosion," but it fails to disclose that in the short term road erosion will increase due to road work and road use. Judge Rothstein said, and the 9th Circuit agreed, that these short-term effects are quite relevant when projects may affect listed fish species with relatively short life cycles.

NEPA REQUIRES DISCLOSURE OF COMPLIANCE WITH SUBSTANTIVE REQUIREMENTS

As explained above, the preferred alternative conflicts with many legal requirements, and the EIS fails to explain whether or how the proposed alternatives meet these various legal requirements. Legal requirements must for the basis for the agencies decision-making. NEPA requires that EISs disclose the environmental consequences of applying the relevant decision criteria.

NEPA requires disclosure of information necessary to determine compliance with legal requirements such as the Endangered Species Act, Clean Water Act, National Forest Management Act, and applicable Forest Plan Standards & Guidelines. See 40 CFR 15087.27(b)(10) and NW Indian Cemetery Protective Association v. Peterson, 795 F2d 688 (9th Circ 1986).

The Office of General Counsel agrees that project level analysis must document "Project Compliance With Other Laws."

> In addition to consistency with the LRMP each project must be in compliance with NEPA, CWA, CAA and other laws. Simply being consistent with the LRMP does not fulfill the site-specific requirements of Federal law. Project level analysis is to "determine findings for NFMA, to ensure compliance with NEPA, and to meet other appropriate laws and regulations." Forest Service Land and Resource Management Planning, FSM 1920 and Forest Service Handbook 1909.12, 5.31. 53 Fed. Reg. 26807, 26836 (July 15, 1988).

f. The BLM must verify that fuels are high risk (B-11).
g. The BLM must analyze fire behavior (B-12).
h. The BLM must avoid locating fuel breaks where they would split blocks of late-successional old-growth habitat and create more edge (B-12). The EIS lacks any analysis of whether the FMZs would be located in LSOG.
i. Do not concentrate treatments in time (B-12). Treat only 50 acres per year (B-18). The EIS appears to create many FMZs over a short time.
j. Retain the largest snags in fuel breaks, in part because many bat species rely on the favorable thermal properties of snags located on or near ridges. (B-14, B-15). But the BLM proposes only to cut the stumps high.
k. The LSRA urges that fuel breaks be built where canopy closure is already been reduced below 40%. (B-39), but without explanation BLM is going far beyond this recommendation.

5. Page F-12 discloses that the effect of salvage on fuel profiles is very complex and there is no data or analysis to support conclusive statements, yet the EIS is bold enough to crudely oversimplify the issue and assert that simply removing most the large dead trees will reduce fire hazards. This is arbitrary and capricious. Page K-6 confirms that the salvage treatments will have little effect on fire hazard. But K-6 must also disclose and consider that fire hazard is most closely related to factors such as slope and weather, and whether we salvage this landscape as proposed or do nothing, in 20 years there will be enough fuels to feed fire. Whether is will be a large or small fire depends largely on temperature, humidity, fuel moisture, slope, wind speed, etc.
6. To start any sort of credible fuels analysis, the EIS must disclose the rates of forest floor fuel accumulation over time, and the rate of fuel decay over time for each proposed unit and compare the action and no action alternatives over time. See, for instance, Fire and Fuels Extension to the Forest Vegetation Simulator http://forest.moscowfsl.wsu.edu/4155/ffe-fvs.html
7. Appendix M fails to account for the fact that natural regeneration is more patchy and less uniform, while post-salvage plantations are more likely to regenerate as large expanses of dense interlocked branches. Since the BLM proposes to leave behind most or all of the material less than 16 inches, both scenarios will be full of down wood in 10-40 years. From this perspective the *unsalvaged* regenerating stand is less prone to intense fire. The EIS must disclose this.
8. The Fuel Management Zones (FMZs) will very likely not be maintained in a low fuel condition due to lack of funds and lack of agency commitment. The end result will be a future brush field or dense reprod along all the FMZs. The EIS must disclose that the FMZs over time will likely develop into a very dangerous fuel condition that is not conducive to firefighter safety.
9. The FMZs may also start out in a very dangerous condition with excessive logging slash that actually increase fire risk. The EIS has not disclosed this risk. Proposed "safety zones" in FMZs are huge devegetated areas and not consistent with LSR objectives.
10. The EIS has a totally inadequate analysis of fire risk because it fails to look at fuel size, fuel quality, fuel build up and breakdown over time, and the <16 inch snags that will be retained (3-159 to 3-161).

OGC, "Forest Plan and Project Level Decisionmaking— Overview of Forest Planning and Project Level Decisionmaking," http://www.fs.fed.us/forum/nepa/decisionm/p4.html#14

The DEIS makes conflicting statements about consistency with LSRA and the NFP ROD (2-63, 2-64, 3-199, 3-200). Valid NEPA analysis will help the agency determine legal compliance and explain it to the public.

OTHER IMPORTANT COMMENTS

1. This proposal will remove most of the largest trees that are most important for meeting LSR and ACS requirements, while leaving behind the most inflammable woody material 16 inches or smaller. The EIS never addresses the ecological impacts or the fire risk of leaving behind so much small material while taking so much large material.
2. The Northwest Forest Plan ROD states *"salvage to reduce such risks should focus only on those areas where there is a high risk of large-scale disturbance."* The EIS has not documented the existence of high risk or made a credible case whether and how each of the proposed actions will reduce such risks.
3. Page 3-157 implies that there are "excessive" snag densities in the fire area and this poses a fire risk, however—
   a. this conclusion is not analyzed anywhere in the EIS, even though that is the recommended approach of the LSRA (to determine if fire suppression has resulted in snag/tree numbers greater than "typical"). Don't say snags are excessive until you credibly analyze it.
   b. And the EIS never address the fire risk posed retaining virtually all snags 16 inches DBH and smaller, which also pose a significant fire hazard and maybe even a more serious hazard due to its smaller size.
4. The fuel breaks must be evaluated with respect to the NFP ROD and the LSRA.
   a. Risk reduction is most appropriate in younger and medium stands not LSOG. (A-6, B-12). The DEIS lacks any disclosure of the age of the stands affected by the FMZs.
   b. The fuel breaks must be "effective" (A-6). What evidence does the BLM have that the proposed fuel breaks are effective given that they are discontinuous in the checkerboard landscape (and private lands are likely to be managed in a hazardous fuel condition with uniform interlocking branches close to the ground), in steep terrain, and the fuel breaks may not be maintained over time in a condition that will remain effective. The Elk Creek Watershed Analysis pages IV-3 and -4 confirms these difficulties.
   c. The scale of the fuel breaks must not degrade late-successional old-growth habitat (A-6). The DEIS has no analysis of the impact of the scale of the FMZs.
   d. The fuel breaks must minimize treatment risk to habitat (B-11).
   e. Volume must be incidental (B-11), but the BLM is using FMZs as an excuse to salvage more large trees in the FMZs that would normally be off-limits because they are in disturbances smaller than 10 acres.

11. The EIS does not adequately explain the spatial and temporal nature of the fire risk. The fire removed much of the small fuels and ladder fuels so much of the area is now at low risk of fire (3-158). The findings in the LSRA and Watershed Analysis may no longer be accurate.
12. Page 3-157 shows that private lands, which are more intensively managed, were more intensely burned. This is probably because the young plantations on private lands tend to burn fast and hot (3-100), while the generally older native forest stands on public lands tend to burn less intensely. Salvage will convert many areas to resemble private lands with uniform dense cover of young conifers. This is not conducive to healthy forest or low intensity future fires.

13. Where safety and LSR objectives conflict the EIS fails to consider the no action or minimal restoration alternatives as acceptable methods of attaining LSR objectives. For instance, to ensure safety the proposed action would remove virtually all the snags in large patch cuts (i.e. clear cuts). This is inconsistent with the NFP ROD requirement to retain all snags likely to persist until the stand begins to recruit large snags. In other words, the type of cutting needed to ensure worker safety would degrade the development of high quality older forest that retains adequate legacies from the previous stand. Since salvage is not necessary to meet LSR objectives, it makes sense to forgo salvage and keep workers out of hazardous areas.
14. Page 3-220 indicates that OSHA would require less hazard tree removal than is being proposed (OSHA = "0"). Since this is an LSR, and since snags contribute to late-successional old-growth habitat now and in the future, the BLM should not fall any more than the bare minimum number of snags.
15. Hazard trees must be carefully and conservatively selected. This is not a high use recreation area and anyone who visits the area would not expect the same degree of safety as one would find along paved public highways. Experience shows that most of the hazard is from smaller hemlocks that fall apart faster and from trees and lean noticeably toward the road. Removal of trees in an LSR could lead to perverse incentives to take trees that provide significant ecological benefits and do not present a significant hazard.
16. Large roadside hazard trees should be left on the ground in the LSR and Riparian Reserves. The EIS fails to explain whether they are needed to meet biological objectives or not.

17. Salvage in the LSR will inappropriately adversely affect late successional species like flying squirrels, olive sided flycatchers which need snags, great gray owl which need leaning trees, and fisher which need cavities.
18. The EIS reports incidental sightings of red tree vole nest material in the area (N-15) but says that red tree vole surveys (3-189) and cultural resource surveys (3-214) will occur after the DEIS but before the action takes place. The informed-decision-making principle of NEPA is to *study first and decide after*. Not the other way around. The BLM must include all survey and manage information in the NEPA document and use it to inform the range of alternatives. See the recent (Oct 2003) decision of Judge King in ONRC Action v. USFS (Civ No. 03-613-KI). ("the presence or absence of survey and manage species is information that should be available prior to the

issuance of a NEPA document and should be used for formulating a range of alternatives, evaluating effects, and decision making.").

19. Page 2-62 uses an unclear baseline for describing the likely incidence of insects. Shouldn't the no action alternative be used as the baseline? The EIS admits that insects are not likely to be a problem, but the EID fails to describe them as a beneficial ecological process and as a food source for numerous forest species.
20. The actual amount and effects of soil erosion are not disclosed just the relative erosion among the alternatives. (2-56)
21. Page 3-146 analyzed the effects on special status plants as if this was Matrix. Please remember that this is an LSR and that wildlife should be maintain at optimal levels, not minimum levels just to facilitate salvage logging. Page 3-199 says that snag retention would meet matrix requirements. This is an LSR.

22. Page 3-24 the EIS fails to recognize the long-term contribution of large CWD to site productivity and soil productivity.
23. Page 3-34 the EIS touts the benefits of salvage in breaking up hydrophobic soil conditions, but elsewhere in the EIS and appendices (1) it is recognized the hydrophobic soils are a very localized phenomena (so the benefits of salvage are far over estimated and applied where it is not needed) and (2) it is recognized that the first couple Fall rains usually break up the hydrophobic soil conditions and that already happened last year and this year, so salvage logging is completely unnecessary. Unless a site specific analysis is performed identifying extensive areas of hydrophobic soils in the fire area and alternatives are designed to address those specific problem areas, all references to the alleged benefits of logging related to hydrophobic soils must be removed from the EIS.
24. Page 3-41 hints that salvage may be proposed in low intensity burn areas and may remove live trees. This is inconsistent with the proposed action.
25. The EIS says that sediment rates will recovery quickly but the EIS fails to recognize that implementation will take time and the effects will linger and harm fish. When will the truck stop rolling?
26. Page 3-83 makes an unsupported conclusion that *no action* and alternative G have the same consequences in terms of sediment. This ignores the fact that salvage, yarding, road construction and road use and other actions will disturb soil, move soil, and cause sedimentation and *no action* will not.
27. Page 3-83 makes an unsupported assumption that project designs features will be 100% effective even though it is well known that they are less than 100% implemented, AND less than 100% effective. Please provide credible scientific support for this statement and describe the consequences if it turns out to be false.
28. The research proposal has several problems:
    a. Birds are highly mobile and the treatment areas may be too small (and the condition of the surrounding landscape too influential and too variable and not controlled).
    b. Removing the shrub skeletons and brush in the control sites will skew the results. There is no way to salvage log without destroying these features, and there is unlikely to be future proposals to remove there features while

retaining the standing snags. The study will no longer be relevant to real world management questions.

29. The logging research proposal violates the LSR Standards & Guidelines and does not belong in an LSR. The proposed research will also adversely affect riparian reserves and owl activity centers. BLM must search for all possible locations to conduct research outside of LSRs before deciding to conduct research that is inconsistent with the LSR Standards & Guidelines.
30. The LSR salvage research questions must be very carefully framed. What exactly is the BLM testing? This appears to be nothing more than a thinly veiled attempt to get volume out of the LSR.
31. The EIS slope stability analysis was not site specific or unit specific (H-20).
32. The May 13, 2003 memo from FWS purporting to approve the DecAID tool as an alternative to the LSRA methodology is arbitrary and capricious. There is no analysis to support this change and it is totally unscientific. The BLM's use of the DecAID tool fails to consider the fact that snags fall down and you need to retain many in the short-term in order to have enough in the long-term.
33. The EIS (3-195) says that they are meeting the requirements of the Diane White paper on retaining snags and coarse wood in SW Oregon, but that paper applies to Matrix regeneration harvest, not salvage. The page 1 of the SW Oregon PIEC MOU that implements this guideline is explicit that is applies to matrix regen, not salvage in an LSR. Green stands continue to recruit snags over time, whereas post-fire salvage must retain enough large snags with enough longevity to last until the next stand begins to recruit significant numbers of large snags and down wood into the stand.
34. The proposed salvage activities conflict with the Medford RMP, because salvage logging and other activities will violate the RMPs deferral of several heavily impacted watersheds in the fire area. Since the fire and private land logging actually exacerbated these cumulative watershed effects, this deferral of entry must be extended.
35. The Warner Creek LSR salvage project on the Willamette National Forest they endeavored to retain trees 20 inches and over. REO found it consistent with the LSR Standards & Guidelines. Consider the following excerpt from the REO review:

> **Snags should be retained when they are likely to persist until late-successional conditions have developed.**
>
> ***Complies***. The project proposes to remove all dead trees within 1.2 to 2 acre circles in dispersed group selection areas, and all dead trees less than 20" dbh (those less likely to survive as snags during the next 80 to 100 years; i.e., the period of creation of LS/OG conditions) from a 50-foot area around the group selection salvage sites. …
>
> The project occurs in an area with nearly 100% tree mortality. The proposal anticipates that within the 492-acre group selection prescription, approximately 98 acres of dispersed openings 1.2 to 2 acres in size would be created. Within the 492-acre group selection, dead trees 20" dbh and larger surrounding these 98

> acres of dispersed openings will be retained for snag and coarse woody debris recruitment. http://www.reo.gov/library/lsr/letters/270lsr.htm

36. The BLM must disclose the environmental effects of uncertainty surrounding the fact that the salvage logging will likely proceed while the restoration projects may never get funded.
37. The BLM failed to consider reasonable alternatives such as one based honestly on the Beschta report. The alternative that is purportedly based on the Beschta report fails to adhere to some of the most important recommendations such as retaining all large and old trees and 50% of each smaller size class.
38. The recommendations in the LSR Assessment and the Watershed Analysis have not been subjected to NEPA. The desired future conditions described in the LSRA of 55% late seral habitat within the LSR has not been validated or analyzed with respect to a range of alternatives or public comment. The recommendations to limit high risk conditions to 28% of the LSR is similarly un-evaluated in terms of NEPA.
39. The EIS (p 1-11) says that the LSRA will be updated *after* the FEIS/ROD for this project is approved, but if these documents are to be used as aids to informed decision-making (as intended in the Northwest Forest Plan ROD) then they need to be undated before the decision, not after.
40. Figure 2.3-1 on page 2-5 is highly misleading. Rather than describing the fate of all fire-killed trees, this graph should be describing the fate of large trees (over 20 inches) that are most likely to last the longest and are therefore most biologically relevant. Compare to the figure on page 3-222 which shows that most of the volume is in giant tress over 36 inches.
41. Replanting should be carefully evaluated and kept to a minimum especially in the LSR. Replanting should be done in patches and/or at low density. Natural regeneration is often slow and we should not truncate the early stages of forest succession where much of the diversity of old forests gets it start.
42. Page 2-38 of the DEIS makes an unsupported statement that it would be unreasonable to use the recommendations of the LSR Assessment as the maximum salvage alternative.
43. Page 2-39 makes an unsupported conclusion that the recommendations of the Beschta report could not be implemented. This conclusion should only be made after fully considering it as an alternative. The alternative modeled on the Beschta report should at least have retained all large and old trees as recommended by the experts.
44. Prescribed fire in owl centers should be deferred until the owl habitat has recovered somewhat from the fire.
45. Because this is an LSR, the BLM must retain all pre-fire-suppression trees in the thinning, pine restoration, FMZ, and oak restoration treatments.

Critical Habitat is for recovery

This project occurs in critical habitat unit (CHU) designated for the conservation and recovery of the northern spotted owl. The NEPA analysis must disclose the current condition of the CHU and how this CHU may fit into species recovery and conservation

efforts. The agency must retain all options for species recovery and avoid taking actions that will limit options for recovery.

> A recent federal court decision may lead the federal government to designate more lands as "critical habitat" of endangered species and impose more restrictions on the use of those lands. The Fifth Circuit ruled in Sierra Club v. U.S. Fish and Wildlife Service, No. 00-30117 (5th Cir. Mar. 15, 2001), that the U.S. Fish and Wildlife Service and National Marine Fisheries Service had improperly interpreted the Endangered Species Act to provide for the designation and protection of critical habitat essential to the "survival" of listed species. According to the court, the Act calls on the Services to aim higher-and designate and protect critical habitat essential to the "recovery" of listed species.
> …
>
> The Endangered Species Act, noted the court, defines "conservation" as "the use of all methods and procedures which are necessary to bring any endangered . . . or threatened species to the point at which the measures provided by the [Act] are no longer necessary." This, said the court, "is a much broader concept than mere survival" that "speaks to the recovery of a threatened or endangered species." As the Services' standard for destruction or adverse modification protected critical habitat only from actions decreasing the likelihood of the *survival and recovery* of a listed species, the court found it inconsistent with Congress' intent as expressed in the Act.

http://www.stoel.com/resources/articles/environment/news-mar01-2.shtm

Forest insects and diseases help regulate a healthy forest.

The EIS discloses that salvage will reduce the incidence of insects. This is not a benefit of salvage but rather a detriment, because insects not only provide food for many species of terrestrial, aquatic, and avian animals but they also help regulate forest density. The NEPA document failed to consider the beneficial effects of insects.

> The massive insect epidemics that have plagued Pacific Northwest forests in recent years are mostly a reflection of poor forest health conditions, overcrowding, overuse of chemicals, fire suppression and introduction of monocultures or non-native species, a new report concludes.
>
> Beyond that, these insect attacks are actually nature's mechanism to help restore forest health on a long-term basis and in many cases should be allowed to run their course, according to Oregon State University scientists in a new study published this week in the journal Conservation Biology In Practice.
>
> Native insects work to thin trees, control crowding, reduce stress and lessen competition for water and nutrients, the researchers found. Some levels of insect

herbivory, or plant-eating, may even be good for trees and forests, and in the long run produce as much or more tree growth.

"There is now evidence that in many cases forests are more healthy after an insect outbreak," said Tim Schowalter, an OSU professor of entomology. "The traditional view still is that forest insects are destructive, but we need a revolution in this way of thinking. The fact is we will never resolve our problems with catastrophic fires or insect epidemics until we restore forest health, and in this battle insects may well be our ally, not our enemy."

Historically, Schowalter said, destructive forest insects such as the mountain pine beetle or tussock moth were native to Pacific Northwest forests and served an essential role in keeping them healthy. When trees became too crowded the insects would eliminate weaker trees and reduce competition. But since the beetles' reproductive pheromones only carried effectively about 15-20 feet, naturally open stands of mature pines were protected against widespread outbreaks.

In these same forests today, fire suppression has allowed shade-tolerant, fire-intolerant species to crowd the understory, create an entire forest stressed for water and nutrients, and beetles can skip from one weak tree to another across entire stands. But the solution in cases such as this, Schowalter said, is to address the fundamental issue of overcrowding through forest thinning, controlled fire and insect attack, allowing the pine beetles to actually help in the long-term process of restoring forest health.

It now appears that insects, which are the most abundant and diverse animals on Earth, are anything but destructive pests. Rather, they are major architects of the plant world in both structure and function, and in natural balance help to maintain healthy and productive forest ecosystems.

According to the new report, insects can influence their environment in five key ways:

· Insects aid decomposition, stimulate the breakdown of organic materials, enhance soil fertility and plant growth, burrow in soils and increase its porosity and water-holding capacity.

· Insects are herbivores that eat plants, influencing where they can grow. Sometimes they kill trees and other plants to reduce competition, and many times feed on trees without killing them in ways that actually improve the health and long-term growth of trees and forests.

· Insects are a key food source for vertebrates and other animals, and play a major role in the food chain.

· Insect are dispersal agents to carry seeds, fungal spores, and even other invertebrates from one place to another.

· Insects are pollinators, and in this role also help control the movement of plant species.

Through this multiplicity of roles, forest insects can help to control plant succession, dictate which plants will be allowed to grow or thrive in particular areas, and generally invigorate plant communities, the report said. Studies suggest herbivory levels as high as 40-50 percent make little or no difference to plant growth and survival, and this type of moderate herbivory clearly should not be "fought" with costly controls. Wood production in western U.S. pine forests reached or exceeded pre-attack levels 10-15 years following mountain pine beetle outbreaks, research has shown, and the more an individual Douglas-fir tree is defoliated by the tussock moth, the more it compensates afterwards with increased growth, given sufficient resources. The herbivory may alleviate drought stress by reducing a tree's demand for water, and also encourage more competitive interactions between plant species that ultimately work to the benefit of the tree.

Insects may be so important to soil fertility that they may be a better barometer of forest ecosystem health than the larger trees or animals which live there, researchers say. In natural forest communities there are more than 200 species of arthropods and more than 200,000 individuals in a square meter of soil, and the numbers of these arthropods can tell more than chemical tests about soil concerns such as compaction and nutrient cycling. A study by another OSU researcher showed residual impacts on soil invertebrate populations from a site that had been clearcut and slash burned 40 years earlier.

In their natural role, insects are usually helpful to the forest and rarely cause large epidemics.

"When you have a highly destructive insect epidemic, what that really should be telling us is not that we have an insect problem, but that we have a forest health problem," Schowalter said. "It's monocultures and fire suppression that cause insects to become nuisances. The pests that plague us are all too often of our own making."

As these systems become more fully understood, Schowalter said, it should be possible to work with insects, rather than against them, to produce new solutions to maximize the yield of forest commodities while achieving conservation goals and healthier ecosystems.

"It's really simple on one level," Schowalter said. "We have to pay more than lip service to the balance of nature."

http://www.sciencedaily.com/releases/2001/10/011030230203.htm

See also: Insect Ecology - An Ecosystem Approach Edited by Timothy D. Schowalter Academic Press. 2000. and Schowalter, TD and J. Withgott. 2001. Rethinking insects: What would an ecosystem approach look like? Conservation Biology In Practice 2(4): 11-16.

Thinning must be very carefully done.

The restoration thinning proposals must be carefully implemented to protect soil and water and all legacy structures from previous stands. The thinning prescriptions must be focused on creating variability both *within AND between* stands.

Thinning must be done very carefully (and in many cases avoided) in order to avoid, minimize, and mitigate logging's numerous adverse ecological effects including: (1) removal of large trees that are disease and fire resistant (Frost 1999); (2) increased levels of fine fuels and short term fire hazard (Weatherspoon 1996, Huff et al. 1995, Wilson & Dell 1971, Fahnestock 1968); (3) increased mortality of residual trees due to pathogens and mechanical damage to boles and roots (Filip 1994, Hagle & Schmitz 1993); (4) damage to soil integrity through increased erosion, compaction, and loss of litter layer (Harvey et al. 1994, Meurisse & Geist 1994), (5) creation of sediment that may eventually be delivered to streams and harm fish (Grant & Wolff 1991, Beschta 1978); (6) retention of insufficient densities of large trees and woody debris to sustain viable populations of cavity-nesting and woody debris dependent species (DellaSala et al. 1996); and (7) reduced habitat quality for sensitive species associated with cool, moist microsites or closed canopy forests (FEMAT 1993, Thomas et al. 1993).

Focus on the smallest trees.

Thinning should focus on the smallest trees that have established due to fire suppression and leave a healthy canopy of medium and large trees that are so valuable for wildlife habitat and as future sources of large snags and large down wood.

Focus on the younger stands, defer the older stands.

Recent research by Tappeiner, Poage, and others indicates that a substantial portion of a tree's size and character at several hundred years of age can be explained by the tree's rate of growth at age 50. This leads to a tentative conclusion that thinning stands younger than 50 years old should be a higher priority than thinning stands older than 50 years.

Thinning the harvest units that are less than 50 years old will hopefully have minimal impact on the environment (especially soil, water, and wildlife) and thinning such young stands will likely have long-term ecological benefits in terms of accelerating late successional forest characteristics.

However, thinning the harvest units that are over 50 years old is more likely to have significant environmental impacts and the long-term benefits in terms of accelerating

development of late-successional characteristics is uncertain at best. Recent science tells us that thinning in older stands is less likely to change the trajectory of the stands. The agency should refocus its efforts on younger stands where the results are likely to be on balance more beneficial.

There is scientific controversy over the question of whether and to what degree it is beneficial to thin older trees to accelerate late-successional characteristics. An EIS is needed to address this question.

Scientists have also presented findings that many young densely stocked stands may not develop into late-successional stands as projected in the Northwest Forest Plan. This is new information that must be addressed in a new EIS to consider the consequences of more thinning of young stands (or the lack thereof) on spotted owls and all the other species dependent upon late-successional habitat.

The EA should have had a better discussion (in light of recent research results) of the anticipated impacts and benefits of thinning on the different age classes of trees in the different harvest units. The EA should have had another alternative that considered deferring harvest of the older stands.

See Muir, P.S., R.L. Mattingly, J.C. Tappeiner II, J.D. Bailey, W.E. Elliott, J.C. Hagar, J.C. Miller, E.B. Peterson, and E.E. Starkey. 2002. Managing for biodiversity in young Douglas-fir forests of western Oregon. U.S. Geological Survey, Biological Resources Division, Biological Science Report USGS/BRD/BSR–2002-0006. 76 pp. http://www.fsl.orst.edu/cfer/pdfs/mang_bio.pdf

Make sure long-term benefits out-weigh short-term degradation.

One of your evaluation criteria should be whether any short-term degradation of ACS objectives is off-set by long-term benefits brought about by the proposed action. In this case, a little sediment caused by culvert work will be off-set by better fish passage and or better accommodation of high flows. And some isolation, weeds, and soil disturbance from logging can be off-set by enhanced understory diversity and increased growth of conifers brought about directly by the canopy reduction.

Avoid unnecessary construction of temporary roads

If young stand thinning requires construction of temporary roads, the agency should do an analysis that illuminates how many acres of thinning are reached by each road segment so that we can distinguish between short segments of spur that allow access to large areas (big benefit, small cost) and long spurs that access small areas (small benefit, big cost). This can help inform the decision-maker's balancing of the costs and benefits of thinning and roading.

Temporary roads still cause serious adverse impacts to soil, water and wildlife, and spread weeds. Decommissioning such roads is not entirely successful and the soil

compaction effects can last for decades. The agency should consider avoiding building spurs by treating some areas non-commercially (e.g. thin lightly, create lots of snags, and leave the material on site).

Variable density thinning

We wish that you would use variable density thinning prescriptions in all young stand thinning projects regardless of land allocation. Uniform spacing basically sets up the need for future thinning that the agency may not have sufficient funding, capacity, and public support to accomplish. Whereas variable density thinning leaves more options for either more or less intensive management in the future and is a good hedge against uncertainty. The benefits of variable density thinning include: creating a patchy variety of conditions of light, heat, wind, moisture, competitive stress, and hiding cover within the stand and the landscape; setting up the stand so that there are future "winners" and "losers" (the winners become big trees and the losers become snags and coarse woody debris), etc. Andy Carey has found that:

> "Conventional thinning alone produced few flying squirrels or Douglas' squirrels, but many chipmunks; high plant species diversity but dominated by clonal natives with many exotic species; relatively abundant winter birds, but few woodpeckers; abundant small mammals but in imbalanced communities; and diverse fungi, low in abundance."

Carey, Andrew. **THINKING AND THINNING ECOLOGICALLY**, slideshow http://www.fs.fed.us/pnw/olympia/efb/flash/thinking_&_thinning_ecologically.swf

Salvage retards watershed and aquatic recovery in violation of the NFP Aquatic Conservation Strategy.

The NLAA finding with respect to this project is unsupportable. Large scale salvage, fuel mgt zones, road construction, and restoration combined with the cumulative effects to the fire and the post fire salvage on adjacent private lands will certainly have adverse effects on listed fish. Logging, log yarding, and road use will disturb and mobilize tons of sediment and reduce future recruitment of large woody debris into streams.

Post-fire logging inevitably involves increases in road use, which increases erosion and sedimentation, especially at road crossings (Reid and Dunne, 1984; Roni et al., 2001). Roni et al. (2001) identified reductions in road traffic as a component of watershed restoration, indicating that increased road traffic works in opposition to watershed and stream restoration.

Beschta et al. (1995) noted that even relatively low impact logging systems such as helicopter yarding should be avoided where sedimentation is already a major problem for salmonids or other sensitive aquatic species, because any activity that disturbs litter layers of soil surface horizons, either pre- or post-fire can accelerate soil erosion and sediment delivery to aquatic systems.

The USFS and USBLM (1997a; c) conceded that logging generally increases erosion and, consequently, sedimentation, regardless of how carefully it is implemented. Megahan et al. (1992) came to similar conclusions. Elevated erosion and sedimentation persist for several years after logging disturbance (USFS and USBLM, p. 1101, 1997a).

BMPs do not eliminate the persistent erosional impacts of post-fire logging. USFS and USBLM (p. 446, 1997c) concluded that although BMPs can reduce sediment yields compared to historical practices, risks of increased sedimentation will continue to occur if road building or timber harvest occur, damaging aquatic habitats. Ziemer and Lisle (1993) stated that there are no reliable data indicating that BMPs are cumulatively effective in protecting aquatic resources from the adverse effects of logging and associated impacts. Espinosa et al. (1997) provided evidence from watershed case histories that BMPs thoroughly failed to cumulatively protect salmonid habitats and streams from severe damage from roads and logging.

Logging effects on soils and vegetation increase erosion and sedimentation in the post-fire environment. Logging causes soil compaction which causes loss of soil productivity and increased erosion. The latter is essentially permanent (Beschta et al., 1995) and is the most severe source of reductions in long-term soil productivity (USFS and USBLM, 1997a; b). Soil compaction persists for at 50-80 years (USFS and USBLM, 1997a). Compaction and reduced soil productivity are already major concerns on public lands on regional scales (USFS and USBLM, 1997a; CWWR, 1996).

Logging also reduces soil productivity by removing trees which are major sources of the coarse woody debris (CWD) and organic matter critical to soil productivity (USFS and USBLM, 1997a). Even the removal of slash consisting of tops and branches negatively affects soil productivity by negatively affecting nutrient and organic matter levels; **burning these materials in place** (as occurs with wildland fire) causes much less negative impacts on soils (USFS and USBLM,1997a). USFS and USBLM (p. 466, 1997a) found that losses in soil productivity were correlated with logging and roads within the ICBEMP project area.

USFS and USBLM (p. 206, 1997a) and Kattleman (1996) state that the prevention of soil damage and loss of productivity is easier and more effective than attempts to restore it after damage has occurred. A primary approach to restoring soil productivity is to restore organic matter and coarse woody debris levels by leaving areas undisturbed until organic matter levels have recovered (USFS and USBLM, p. 206, 1997a, emph. is mine). Avoidance of increased erosion is key to restoring soil productivity (Beschta et al., 1995; USFS and USBLM, p. 206, 1997a). The most effective means of controlling erosion is to avoid activities that disrupt/damage soils and vegetation, as is exceedingly well-documented in the literature. Due to the manifold negative effects of logging on soil productivity, erosion, and sedimentation, USFS and USBLM (1997b) concluded that logging had greater negative effects on ecosystem functions than the baring of soils by fire.

The USFS and USBLM (Ch. 4, pp. 12-13, 1997b) notes that although fire may reduce soil productivity, it typically does not reduce it as much as from soil compaction and whole tree removal (e.g. logging), except in the rare cases where fire consumes all organic material. It states: "Because of the mosaic pattern that wildfire produces, and the residual wood that is left on site...wildfire usually has fewer implications for loss of soil productivity and function than disturbances which remove oil organic matter and [increase] bulk density as well." Logging effects on soil properties are usually more severe and more persistent than those of fire (USFS and USBLM, Ch. 4, pp. 13, 1997b).

These multiple impacts on soil productivity are probably why salvage-logging retards post-fire vegetative recovery. Sexton (1998) documented that post-fire salvage logging over snow reduced regrowth of ponderosa pine and other species relative to adjacent burned, but unlogged, areas. Naturally regenerating groundcover in unlogged areas also had greater survival and growth than plantings on areas that had been salvaged logged after fire. Notably, these adverse effects of logging on regrowth were from over-snow logging (Sexton, 1998). It is highly likely that ground-based logging without snowcover retards regrowth to a greater extent due to its greater negative effects on soils.

Kattleman (1996) noted that "If postfire treatments of salvage logging and site preparation prevent rapid reestablishment of low vegetation, resulting erosion can be greater than that directly produced by the fire." Coupled with Sexton's work and the known effects of logging on soil productivity and concomitant effects on revegetation, it appears that post-fire logging creates more erosion and sedimentation than fires.

Logging and elevated road use are also primary vectors for the dispersal and establishment of noxious weeds (USFS, 1999; 2000b). Noxious weed establishment can increase erosion and sediment delivery and impede the recovery of native vegetation USFS (2000a). This is of special concern in burned landscapes because noxious weeds are well-adapted to disturbed environments.

The construction and reconstruction of roads and landings also cause tremendous and enduring increases in erosion and sedimentation in both the post-fire and between fire environments. But that's been covered adequately elsewhere and won't be here.

Salvage is not Restoration

The EIS failed to consider and disclose the site-specific analysis of the many reasons NOT to do post-fire commodity extraction, including but not limited to:

- adverse impacts to soil, such as erosion, compaction, displacement, litter disturbance, nutrient depletion; loss of chemical buffering; loss of soil organic matter; loss of burrowing wildlife that help aerate soils; reduction of nitrogen fixing plants that boost soil fertility; loss of slope and snow stabilizing effects which could lead to mass wasting or eliminate mechanisms that may mitigate mass wasting;

- loss of down wood functions s such as trapping sediment and aiding water infiltration, and creating microsites favorable for germination and establishment of diverse plants, and habitat for diverse wildlife;
- loss of decaying wood and depletion of the "savings account for nutrients and organic matter" which affects site productivity through the removal of dead trees which store nutrients and slowly release them to the next stand. Recent studies indicate that wood may release nutrients more rapidly than previously thought through a variety of decay mechanisms mediated by means other than microbial decomposers, i.e. fungal sporocarps, mycorrhizae and roots, leaching, fragmentation, and insects;
- loss of nutrients from live trees that are determined to be "dying." Live trees produce serve as refugia for animals, invertebrates, and mycorrhizae; produce litter fall; and help cycle nutrients which are all extremely valuable in the post-fire landscape;
- loss of wood that serves to buffer soil chemistry and prevent extreme changes in soil chemistry;
- water quality degradation;
- loss of water storage capacity in down logs;
- altered timing of storm run-off which could lead to peak flows that erode stream banks and scour fish eggs;
- delaying the pace of vegetative recovery and reducing the quality/diversity of the vegetation community;
- spread of invasive weeds through soil disturbance and extensive use of transportation systems;
- loss of legacy structures that can carry species, functions, and processes over from one stand to the next;
- loss of terrestrial and aquatic habitat (mostly snags and down logs) potentially harming at least 93 forest species (63 birds, 26 mammals, and 4 amphibians) that use snags for nesting, roosting, preening, foraging, perching, courtship, drumming, and hibernating, plus many more species that use down logs for foraging sites, hiding and thermal cover, denning, nesting, travel corridors, and vantage points for predator avoidance;
- Depletion of large wood structures in streams that can cause: 1) simplification of channel morphology, 2) increased bank erosion, 3) increased sediment export, 4) decreased nutrient retention, 5) loss of habitats associated with diversity in cover, hydrologic patterns, and sediment retention;
- commercial salvage usually removes the largest trees, but this will disproportionately harm wildlife because: (1) larger snags persist longer and therefore provide their valuable ecosystem services longer and then serve longer as down wood too, and (2) most snag-using wildlife species are associated with snags >14.2 inches diameter at breast height (dbh), and about a third of these species use snags >29.1 inches dbh.
- Truncation of symbiotic species relations and loss of biodiversity. Sixteen species are primary cavity excavators and 35 are secondary cavity users; 8 are primary burrow excavators and 11 are secondary burrow users; 5 are primary terrestrial

runway excavators and 6 are secondary runway users. Nine snag-associated species create nesting or denning structures and 8 use created structures.

- Reduced avian and terrestrial species diversity which affects plant and invertebrate diversity. Since different wildlife help disperse different sets of seeds and invertebrates, reduced wildlife diversity can significantly affect pace of recovery and the diversity of the regenerating stand. Snag- associated wildlife play a greater role in dispersal of invertebrates and plants, while down wood-associated wildlife play a greater role in dispersal of fungi and lichens. Down wood-associated species might contribute more to improving soil structure and aeration through digging, and to fragmenting wood which increases surface area encouraging biological action that releases nutrients.
- loss of partial shade that helps protect the next generation of forest;
- loss of cover quality and fawning areas for big game;
- loss of future disturbance processes such as falling snags that help thin and diversify the next generation of forest;
- increased human activity and human access that can increase fire risk;
- increased fine fuels on the forest floor that can cause an increase in fire hazard;
- loss of seed sources, and
- loss of diversity of vegetation and microsite conditions.
- The fact that regional standards for snags and down wood fail to incorporate the most recent science indicating that more snags and down wood (especially large snags and logs) are required in order to maintain species viability and sustain site productivity.
- Arguments in support of the "reburn hypothesis" are specious. (1) partial reburn may be completely natural and desirable in some cases to consume some fuel and diversify the regenerating forest, and (2) salvage logging will cause a pulse of fine fuels on the ground and actually increase the reburn risk/hazard above natural levels, and (3) fuels that fall to the ground over time will to some extent decay as they fall.
- Uncertainty calls for a cautious approach.

Compare these adverse impacts of salvage logging to the few scant reasons to salvage (e.g., economic recovery of fiber).

Prevention of reburn must not be used as a justification for post-fire logging, without carefully documenting the rationale and providing references to published scientific studies (not just hypotheses and speculation and anecdotes). Also, the Forest Service must explain whether logging will increase or decrease the risk of reburn in terms of fuels profiles over various time horizons, ignition sources, etc. Salvage logging increases fine and mid-size fuels in the short-term by leaving treetops, branches, and needles on site. Fine and mid-size surface fuels also occur in unsalvaged areas, but accumulate gradually over time. It is unlikely that fuels in an unsalvaged area would reach the same magnitude as in the post-salvage scenario because decomposition breaks down new material accumulates.

Please consider at least one non-commercial, restoration-only alternative that invests in restoration and recovery of the fire area by, for instance, eliminating livestock grazing,

emphasizing native species recovery, not building any new roads, stabilizing soils disturbed by the fire suppression effort, decommissioning unneeded roads.

Also, consider an alternative modeled on the recommendations of the Beschta report. Specifically:

- prohibit post-fire logging AND roadbuilding on all sensitive sites, including: severely burned areas (areas with litter destruction), on erosive soils, on fragile soils, in roadless areas, in riparian areas, on steep slopes, and any site where accelerated erosion is possible. We would add: Late-Successional and Riparian Reserves, and protective land allocations or designations including Botanical and Scenic River Areas;
- protect all live trees;
- protect all old snags over 150 years old;
- protect all large snags over 20 inches dbh;
- protect at least 50% of each size class of dead trees less than 20 inches dbh.

See Beschta RL, Frissell CA, Gresswell R, Hauer R, Karr JR, Minshall GW, Perry DA, and Rhodes JJ. 1995. Wildfire and Salvage Logging: recommendations for ecologically sound post-fire salvage logging and other post-fire treatments on Federal lands in the West. Corvallis, OR: Oregon State University. Available at: http://www.fire-ecology.org/science/Beschta_Report.pdf

SNAGS, DECAYED WOOD AND ASSOCIATED FUNCTIONS AND SPECIES

Bats, martens, woodpeckers, bears, and many other species are dependant upon snags and down wood. Snags and down wood also provide several crucial ecosystem structures, functions, and processes. Current direction for protecting and providing snags and down wood does not ensure the continued operation of these ecosystem functions or meet the needs of the many species associated with this unique and valuable habitat component. Consider all the many values of snags and down wood presented in Rose, C.L., Marcot, B.G., Mellen, T.K., Ohmann, J.L., Waddell, K.L., Lindely, D.L., and B. Schrieber. 2001. Decaying Wood in Pacific Northwest Forests: Concepts and Tools for Habitat Management, Chapter 24 ***in Wildlife-Habitat Relationships in Oregon and Washington*** (Johnson, D. H. and T. A. O'Neil. OSU Press. 2001) http://www.nwhi.org/nhi/whrow/chapter24cwb.pdf

Introduction

Decaying wood has become a major conservation issue in managed forest ecosystems.[31,64, 69,348,361] Of particular interest to wildlife scientists, foresters, and managers are the roles of wood decay in the diversity and distribution of native fauna, and ecosystem processes. Numerous wildlife functions are attributed to decaying wood as a source of food, nutrients, and cover for organisms at numerous trophic levels.[101,232,339,346,359] Principles of long- term productivity and sustainable forestry include decaying wood as a key feature of productive and resilient ecosystems.[30,128,201,205,358] In addition to a growing appreciation of the aesthetic, spiritual, and recreational values of forests, society increasingly recognizes ecosystem services of forests as resource .capital. with tangible economic value to humansy, such as air and water quality, flood control, and climate modification.[15,262,299]

The ecological importance of decaying wood is especially evident in coniferous forests of the Pacific Northwest. In this region, the abundance of large decaying wood is a defining feature of forest ecosystems, and a key factor in ecosystem diversity and productivity.[127] … Large accumulations of decaying wood provide wildlife habitat and influence basic ecosystem processes such as soil development and productivity, nutrient immobilization and mineralization, and nitrogen fixation.[60,131,310,315] …

…

Since the publication of Thomas et al.[293] and Brown,[40] new research has indicated that more snags and large down wood are needed to provide for the needs of fish, wildlife, and other ecosystem functions than was previously recommended by forest management guidelines in Washington and Oregon. For example, the density of cavity trees selected and used by cavity-nesters is higher than provided for in current management guidelines.[51,352] …

…

Ecological Functions of Decaying Wood

…

Recent significant advancements have defined wildlife species-specific relationships with particular characteristics and components of decaying trees, both standing and fallen,[36,65, 185,204,331,370,386,402] and implications for management.[31,68,320,326,330,327] …

…

Hollow trees larger than 20 inches (51 cm) in diameter at breast height (dbh) are the most valuable for denning, shelter, roosting, and hunting by a wide range of animals.[7], …

…

… In the Interior Columbia Basin, grand fir and western larch form the best hollow trees for wildlife uses. …

…

Recent studies have provided valuable insight on wildlife uses of snags (dead trees).[51,96,334, 402] Snags provide essential habitat features for many wildlife species (Figure 6). The abundance of cavity-using species is directly related to the presence or absence of suitable cavity trees. Habitat suitability for cavity-users is influenced by the size (diameter and height), abundance, density, distribution, species, and decay characteristics of snags.[107] In addition, the structural condition of surrounding vegetation determines foraging opportunities.[402]

The Habitat Elements matrix on the CD-ROM with this book lists a total of 96 wildlife species associated with snags in forest (93 species) or grassland /shrubland (47 species) environments. Most of these species use snags in both environments. In forests, this includes 4 amphibian, 63 bird, and 26 mammal species. Additionally, 51 wildlife species are associated with tree cavities, 45 with dead parts of live trees, 33 with remnant or legacy trees (which may have dead parts), 28 with hollow living trees, 21 with bark crevices, and 18 with trees having mistletoe or witch's brooms. Habitat uses include nesting, roosting, preening, foraging, perching, courtship, drumming, and hibernating (Figure 7).

Of the 93 wildlife species associated with snags in forest environments, 21 are associated with hard snags (Stages 1 and 2), 20 with moderately decayed snags (Stage 3), and 6 with soft snags (Stages 4-5) in the five-stage classification system. According to the matrixes,188 most snag-using wildlife species are associated with snags >14.2 inches (36 cm) diameter at breast height (dbh), and about a third of these species use snags >29.1 inches (74 cm) dbh.

This query of the Habitat Elements matrix illustrates the breadth of updated information about wildlife and snag habitat relations. Research results have expanded the number and variety of decaying wood categories over what was previously presented in Thomas[293] and Brown.[40]

…

. Down Woody Material (logs). Down wood affords a diversity of habitat functions for wildlife, including foraging sites, hiding and thermal cover, denning, nesting, travel corridors, and vantage points for predator avoidance.[64,69,259] Larger down wood (diameter and length) generally has more potential uses as wildlife habitat. Large diameter logs, especially hollow ones are used by vertebrates for hiding and denning structures.[264,359] …

…

Long term Productivity

… Processes that sustain the long- term productivity of ecosystems have become the centerpiece of new directives in ecosystem management and sustainable forestry.[30,229,261,320] Given the key role of decaying wood in long-term productivity of forest ecosystems in the Pacific Northwest,[320,349,261,303] the topic should remain of keen interest to scientists and managers during the coming decade.[349] …

Nutrient Cycling and Soil Fertility. Decaying wood has been likened to a savings account for nutrients and organic matter,[336] and has also been described as a short-term sink, but a long-term source of nutrients in forest ecosystems.[304] …

… Substantial amounts of nitrogen are returned to the soil from coarse wood inputs, yet even where annual rates of wood input are high, 4 to 15 times more nitrogen is returned to the forest floor from foliage than from large wood.[168] …

… The low nutrient content in wood, small mass of tree boles relative to foliar litterfall, and slow rates of wood decay suggest that large wood plays a minor role in forest nutrition.[51,139,193] After large scale disturbance such as fire and blowdown, however, the large nutrient pool stored in woody structures of trees (bole, branches, twigs, roots) becomes available to the regrowing forest. Large down wood may thus be an ample source of nutrients throughout secondary succession.[285]

…

Recent studies indicate that wood may release nutrients more rapidly than previously thought through a variety of decay mechanisms mediated by means other than microbial decomposers, i.e. fungal sporocarps, mycorrhizae and roots, leaching, fragmentation, and insects.[107,150,339,342,339,403] …

Soil is the foundation of the forest ecosystem.[89, 269] … On the H. J. Andrews Experimental Forest of western Oregon, 20-30% of the soil volume consists of decaying wood dispersed throughout a matrix of litter and duff.[294] Because wood is a relatively inert substance, it may help to stabilize pools of organic matter in forests by slowing soil processes and buffering against rapid changes in soil chemistry. …

…

… Numerous studies have demonstrated that losses in soil productivity often are closely linked to losses in soil organic matter.[269]

…

Mass Wasting and Surface Erosion. … Large wood helps to anchor snowpacks, limit the extent of snow avalanches, and may even stabilize debris flows, depending on the depth of the unstable area.[320,306,308] … By covering soil surfaces and dissipating energy in flowing and splashing water, logs and other forms of coarse wood significantly reduce erosion.[307] Large trees lying along contours reduce erosion by forming a barrier to creeping and raveling soils, especially on steep terrain. Material deposited on the upslope side of fallen logs absorbs moisture and creates favorable substrates for plants that stabilize soil and reduce runoff.[220]

Stand Regeneration and Ecosystem Succession. Decomposing wood serves as a superior seed bed for some plants because of accumulated nutrients and water, accelerated soil development, reduced erosion, and lower competition from mosses and herbs.[160,178] In the Pacific Northwest, decaying wood influences forest succession by serving as nursery sites for shade-tolerant species such as western hemlock, the climax species in moist Douglas- fir habitat.[96,158,160,165,246] Wood that covers the forest floor also modifies plant establishment by inhibiting plant growth, and by altering physical, microclimatic, and biological properties of the underlying soil. For example, elevated levels of nitrogen fixation in *Ceanothus velutinus* and red alder[81,88] have been reported under old logs.

Streams and Riparian Forests. Long-term productivity in streams and riparian areas is closely linked to nutrient inputs, to attributes of channel morphology, and to flow dynamics created by decaying wood.[194,201,360] …

Large wood is the principal factor determining the productivity of aquatic habitats in low- and mid-order forested streams.[202] Large wood stabilizes small streams by dissipating energy, protecting streambanks, regulating the distribution and temporal stability of fast-water erosional areas and slow-water depositional sites, shaping channel morphology by routing sediment and water, and by providing substrate for biological activity.361 The influence of large wood on energy dissipation in streams influences virtually all aspects of ecological processes in aquatic environments, and is responsible for much of the habitat diversity in stream and riparian ecosystems.[202,370]

Key Ecological Functions of Wildlife Species Associated With Decaying Wood

…

Various symbiotic relations can be described for the 96 snag-associated species. Sixteen species are primary cavity excavators and 35 are secondary cavity users; 8 are primary burrow excavators and 11 are secondary burrow users; 5 are primary terrestrial runway excavators and 6 are secondary runway users. Nine snag-associated species create nesting or denning structures and 8 use created structures. Sixteen species might influence vertebrate population dynamics and 22 might influence invertebrate population dynamics. Snag-associated species also contribute to dispersal of other organisms including seeds and fruits (21 snag-associated wildlife species perform this function), invertebrates (8 species), plants (8 species), fungi (2 species), and lichens (1 species). Six snag-associated species can improve soil structure and aeration through digging, 2 species fragment standing wood, and 2 species fragment down wood. One snag-associated species creates snags, and at least 1 can alter vegetation structure and succession through herbivory.

…

… both snag- and down wood-associated wildlife more or less equally participate in dispersal of seeds and fruits (although the particular species they disperse may differ); however, snag- associated wildlife play a greater role in dispersal of invertebrates and

plants, and down wood-associated wildlife play a greater role in dispersal of fungi and lichens. Down wood-associated species might contribute more to improving soil structure and aeration through digging, and to fragmenting wood. This is one example of the far greater differentiating power afforded by a well-constructed set of matrixes than was previously available in Thomas [366] and Brown.[45] …

…

Fire Suppression. In the eastern Cascades and through much of the intermountain area, extensive forest insect and disease problems have resulted from decades of fire suppression in combination with selective harvesting of pines.[177,197,206,491,498] An analysis of landscape dynamics in the Interior Columbia River Basin[492,359] revealed that fire suppression resulted in a decreased abundance of large- diameter trees, and caused fuel accumulations that predisposed forests to stand-replacement fires. As mentioned previously, more intense fires not only consume more wood, but can inhibit wood decay by reducing nitrogen availability (and other elements) through volatilization and leaching, especially for wood in close association with the soil.[345] Wood decay in post-fire regenerating forests also may be exacerbated by a decline in symbiotic nitrogen-fixing plant species in stands subject to prolonged fire suppression.[169]

…

Management Considerations Management Ramifications of Snag and Down Wood Abundance

…

… The apparent dearth of large snags in Ponderosa pine may mean lower suitability for the 54 wildlife species associated with large snags (20+ in or 51+ cm dbh) in that wildlife habitat. Intensive forest management activities that have decreased the density of large snags in early forest successional stages (sapling/pole and small tree stages) may have had adverse impacts on the 61 associated wildlife species (Figure 12). Similarly, the lesser amount of large down wood in early forest successional stages may not provide as well for the 24 associated wildlife species. Such results suggest the continuing need for specific management guidelines to provide large standing and down dead wood in all successional stages.

…

Depletion of Large Wood. The loss of large wood structures has numerous potential impacts on ecological functions of forests, although available information is inadequate for a definitive assessment. The lack of large logs on steep slopes can decrease water percolation into soil, impair slope stability, accelerate soil erosion and sediment input to streams, and increase nutrient losses in litter.[194,320,329,360,361] Some data support a linkage between intensive management (especially depletion of decaying wood) and reduced forest biomass productivity, particularly on less productive sites. Lower productivity is attributed to nutrient losses from managed forests, reduced nutrient availability in older stands, and decreased nutrient storage, particularly in the soil.[370,383,384] Depletion of soil organic matter has been cited as a primary factor contributing to declining forest productivity and biodiversity in the Pacific Northwest and elsewhere.[37,157,189,189,226,281,283,286,389]

…

Riparian Forests. … Far-reaching effects of the absence of large wood structures in streams include: 1) simplification of channel morphology, 2) increased bank erosion, 3) increased sediment export and decreased nutrient retention, 4) loss of habitats associated with diversity in cover, hydrologic patterns, and sediment retention.[33,144,202] In coastal environments and estuaries, the loss of large wood may disrupt trophic webs and alter coastal sediment dynamics.[233]

…

Lessons Learned During the Last Fifteen Years

…

Several major lessons have been learned in the period 1979-1999 that have tested critical assumptions of these earlier management advisory models:

- . Calculations of numbers of snags required by woodpeckers based on assessing their .biological potential. (that is, summing numbers of snags used per pair, accounting for unused snags, and extrapolating snag numbers based on population density) is a flawed technique. Empirical studies are suggesting that snag numbers in areas used and selected by some wildlife species are far higher than those calculated by this technique.[226]
- . Setting a goal of 40% of habitat capability for primary excavators, mainly woodpeckers,[360] is likely to be insufficient for maintaining viable populations.
- . Numbers and sizes (dbh) of snags used and selected by secondary cavity-nesters often exceed those of primary cavity excavators.
- . Clumping of snags and down wood may be a natural pattern, and clumps may be selected by some species, so that providing only even distributions may be insufficient to meet all species needs.
- . Other forms of decaying wood, including hollow trees, natural tree cavities, peeling bark, and dead parts of live trees, as well as fungi and mistletoe associated with wood decay, all provide resources for wildlife, and should be considered along with snags and down wood in management guidelines.
- . The ecological roles played by wildlife associated with decaying wood extend well beyond those structures per se, and can be significant factors influencing community diversity and ecosystem processes.

We have also learned that managing forests with decay processes should be done as part of a broader management approach to stand development, with attention paid to retaining legacies of large trees and decaying wood from original or prior stands. Further lessons have been learned in the area of technical and operational developments; some of these are discussed below.

…

… Studies suggest that wood habitat structures function best for wildlife when they are broadly distributed as well as occurring in locally- dense clumps, such as with scattered snag or down wood patches. …

…

… A new modeling tool named DecAID is available to assist with this task. DecAID (as in .decayed. or .decay aid.) is a new Decayed Wood Advisory Model being developed to address some of the recent lessons learned.226, 247 DecAID is based on a thorough review of literature, available research and inventory data, and expert judgment. It broadens the paradigm for wildlife species and habitat assessment by considering the key ecological functions of wildlife (see below) as well as the ecosystem context of wood decay in terms of secondary effects on forest productivity, fire, pest insects, and diseases.

…

The manager will be able to use DecAID for advice on the following topics by first specifying wildlife habitat, structural stage, and statistical (confidence) level: 1) wildlife species associated with particular sizes and densities of snags and down wood, or, conversely, the sizes and densities required to meet specified wildlife management objectives, at three levels of confidence; 2) the array of key ecological functions of wildlife associated with decaying wood; 3) the recent-historic and current range of natural conditions of snags and fallen trees; 4) advice on fire risk assessment and mitigation; 5) advice on the roles of insects and diseases associated with various amounts

of decaying wood; 6) and the influence of the abundance of decaying wood on ecosystem processes and productivity.

…

Management Tools and Opportunities

…

… In young stands, Franklin[222] recommends that management should:

1. Aggressively create stands of mixed composition to maintain habitat for a broad array of species (and to achieve diversity in quality and timing of nutrient inputs to streams).
2. Delay the process of early canopy closure (wide spacings, pre-commercial thinning etc.).
3. Provide for adequate amounts and a continuous supply of large wood, including snags and down logs, for maintaining structural diversity in forests and streams and maintaining all other ecosystem processes associated with wood.

The basic theme of these revisions of intensive forestry practices is to retain the higher levels of complexity found in natural forests, and in so doing, to protect processes and structures that retain future options for ecosystem management. …

…

… Retention of snags provides numerous habitat benefits.[158,259,402] However, safety and liability issues associated with snag retention have posed an operational barrier to management objectives for structural retention. Two approaches useful in reducing hazards associated with snags are: 1) to cluster snags in patches rather than wide dispersal, and 2) to create snags from green trees after cutting.[222]

… Managers must also consider the temporal dimension to decaying wood, to ensure that sufficient snag and down wood densities are provided through time. …

Live (Green) Tree Retention. Retention of living trees on cutover areas is one form of structural retention that can provide for future recruitment of snags and down wood …

> Green trees function as a refugium of biodiversity in forests. For example, many species of invertebrate fauna in soil, stem, and canopy habitats of old-growth forests do not disperse well, and thus, do not readily recolonize clear-cut areas.[207,326] The same concept holds for many mycorrhizae-forming fungal species.[295] Added benefits of green tree retention include moderated microclimates of the cutover area, which may increase seedling survival, reduce additional losses of biodiversity on stressed sites,[295] and facilitate movement of organisms through cutover patches of the landscape. Green trees retained across harvest cycles can also be used to grow very large trees for either ecologic or economic goals. …

Green tree retention offers many benefits to wildlife. For example, the higher structural diversity in young stands that contain legacy trees from previous stands provides much improved habitat values to late successional species such as the northern spotted owl, as well as other vertebrates that use late-successional stands for some elements of their life history.[95,122,134] Such stands may provide wildlife habitat as early as age 70-80 years rather than 200-300 years, the approximate time interval required for old-growth conditions to develop after secondary succession. …

…

Summary of Management Recommendations

> The information presented in this chapter emphasizes several properties of decaying wood in forest ecosystems: (1) each structure formed by decaying wood helps support a different functional web in the ecosystem; (2) no one decaying wood structure supports all functions equally; and (3) all decaying wood habitats together support the widest array of ecological functions and associated wildlife species. The CD-ROM with this book in combination with the DecAid model provides managers with a powerful tool that makes it possible to assess the degree of .full functionality. of ecosystems as supported by the various decaying wood structures, and which functions are strengthened, diminished, or lost through alternative silvicultural management practices.
>
> Lessons for managers are:
> ...
> **2. Emphasize retention of wood legacies, and secondarily promote restoration where legacies are deficient to meet stated objectives.** The decline of species associated with late-successional forest structures, as well as the prolonged time needed to produce wood legacies, suggests that it is both ecologically and economically advantageous to retain legacy structures across harvest cycles wherever possible, rather than attempt to restore structures that have been depleted. This is especially obvious for slow-growing tree species and very large wood structures. ...
> ...
> **Operational Considerations**
> ...
> ... OSHA revised the federal Logging Standard (29 CFR 1910.266) in 1995, to clarify its intent that danger trees may be avoided, rather than being removed or felled.[76] A danger tree is any standing tree (live or dead) that poses a hazard to workers, from unstable conditions such as deterioration, damage, or lean. The revised rule allows some discretion in determining the hazard area around a danger tree, by ...allowing work to commence within two tree lengths of a marked danger tree, provided that the employer demonstrates that a shorter distance will not create a hazard for an employee..(OSHA Logging Preamble, Section V). Determining a safe working distance requires a case-by-case ....evaluation of various factors such as, but not limited to, the size of the danger tree, how secure it is, its condition, the slope of the work area, and the presence of other employees in the area. ...
> ...
> Concerns frequently arise where high public use creates a risk of third party liability. Considerations include the proximity of reserve trees to roads, trails, campgrounds, ski areas, and other recreation areas and public access points. Methods for addressing these concerns include signage and clear delineation of potential hazard areas, fencing and other barriers to discourage public access, snag height reduction and use of setbacks to minimize exposure.

The bottom line is that current management at project level does not reflect all this new information about the value of abundant snags and down wood. The agency must avoid any reduction of existing or future large snags and logs (including as part of this project) until the applicable management plans are rewritten to update the snag retention standards. See also PNW Research Station, "Dead and Dying Trees: Essential for Life in the Forest," Science Findings, Nov. 1999 (http://www.fs.fed.us/pnw/sciencef/scifi20.pdf) ("Management implications: Current direction for providing wildlife habitat on public forest lands does not reflect findings from research since 1979; more snags and dead

wood structures are required for foraging, denning, nesting, and roosting than previously thought.") See also:
Jennifer M. Weikel and John P. Hayes, HABITAT USE BY SNAG-ASSOCIATED SPECIES: A BIBLIOGRAPHY FOR SPECIES OCCURRING IN OREGON AND WASHINGTON, Research Contribution 33 April 2001, http://www.fsl.orst.edu/cfer/snags/bibliography.pdf; and DecAID, the Decayed Wood Advisor for Managing Snags, Partially Dead Trees, and Down Wood for Biodiversity in Forests of Washington and Oregon, http://wwwnotes.fs.fed.us:81/pnw/DecAID/DecAID.nsf

Additional snags should be left because future fires (both managed and unmanaged) and illegal firewood cutting is almost certain to take a heavy toll on snags over the next several decades.

The snag retention requirements for this project fail to retain enough snags to provide habitat for viable populations of cavity dependent species. Since snags have a patchy spatial distribution, surveys to determine snag abundance require very large sample sizes relative to other general vegetation surveys. This was not recognized until relatively recently, so most past surveys conducted to determine natural snag abundance have therefore grossly underestimated the true abundance of snags. This has lead the Agency to underestimate the number of snags necessary to protect species. This new information must be disclosed and documented in a EIS and it requires a forest plan amendment.

The agency must do away with the caveat that they will protect snags "except where they create a safety hazard." This is based on a false choice between snags and safety. The agency can just buffer snags from activities that involve workers, then all ecologically important snags can be protected. The agency must consider this as an alternative to their proposed "management by caveat." An example of this was the Umpqua National Forest, Cottage Grove Ranger District's 2001 decision to burn a picnic table near Moon Falls in order to avoid placing the public in a hazardous situation with respect to a nearby snag. Similarly, the agency here should save the snags by avoiding the activity in the hazard zone around the snags.

Salvage: Protect all live trees

While it is true that some trees with signs of life will soon die, the agency fails to acknowledge or disclose the degree of confidence in their estimates (i.e. how many false positive predictions of imminent death will the agency make) and fails to recognize the huge importance of remaining live trees as future sources of snags to fill the temporal gap between the batch of snags created by this fire and those to be produced in the distant future by the next stand of trees.

Salvage operations typically assume that many living trees will soon die and then salvage becomes a self-fulfilling prophecy. Trees that may survive the fire are an extremely valuable feature of the future forest. Providing scarce canopy and shelter in the short-term and providing scarce large snag and down wood habitat in the long-term, during a period

when forest-fire landscapes are typically depauperate in snags and large wood. The NEPA analysis failed to adequately disclose and analyze this and the EIS consider the effects of harvesting numerous trees that may survive.

Salvage: Give it a long rest from grazing.

The fire area must be rested from grazing. The NEPA analysis fails to disclose the significant adverse effects of livestock grazing in a post-fire landscape in terms of degrading water quality, spreading invasive weeds, retarding vegetative recovery, soil compaction, etc.

In the short term, grazing must be eliminated to allow recovery of plants, soil, and to protect water quality. In the long term, grazing must be eliminated of the agency is sincere about re-establishing natural fire regimes which depend on natural fuel profiles, which are seriously adversely affected by livestock grazing.

Salvage: Watershed restoration.

Salvage logging will adversely affect the ability of the land to absorb, store and release high quality water and the NEPA analysis fails to address these concerns.

First, post-fire soils are fragile because the soil duff is often consumed by the fire and the carbon and other nutrients have been largely removed. Logging will further disturb the soils and disrupt the natural soil recovery processes. Logging will also disturb and rearrange the soil protecting needle litter that will fall in the months after the fire.

Second, large wood absorbs water and serves as a significant water reservoir that is especially critical during the dryer summer months. Logging removes the wood and so reduces the potential water reservoir. Recent research indicates that much water is stored in buried wood. This buried wood is likely to result of trees that have fallen on hillslopes and become buried in natural sediment moving downslope. Salvage will adversely affect the recruitment of future buried wood.

The agency's snag retention guidelines are based on wildlife needs, but fail to consider or analyze the need to large snags and large down logs for soil, water storage, nutrient storage, or other purposes.

Third, road construction, reconstruction, and road use all adversely affect the ability of the lad to "distribute quality water." The Cub EA admits that 12.9 miles of roads are located in proximity to streams and are potential sources of sediment to the stream system (EA at 39). Using these roads for log haul will cause water quality problems inconsistent with the sustain yield principles.

Salvage: Beschta Report comments

Protect live trees and large snags. The Beschta report recommends retaining all live trees, all large and old snags, plus 50% of each smaller diameter class. This project fails to address each of these recommendations separately and just makes up excuses to implement large unnatural salvage clearcuts.

This project tries to excuse removal of large snags on safety grounds but they failed to consider a simple alternative, that its, to restrict workers (and others) from the hazard zone around hazard trees. Also, the Tiller Ranger District in their 1997 "Benchmark" timber sale partially implemented a Beschta-type prescription which retained 50% of the dead snags in a variety of diameter classes while providing for worker safety. If they can do it there, why can't you do it here? See: http://www.umpqua-watersheds.org/unf/benchmark.html

Salvage: Capturing commercial log value is a questionable purpose for this project.

Conducting destructive salvage operations in order to capturing commercial log value is inappropriate. This is an LSR, so the industry had no plausible expectation of benefit from these trees.

This nation does not need to destroy public resources in order to supply its wood product needs. The local timber industry should get its raw materials from private lands. The highest and best use of the National Forests is for clean water, wildlife habitat, recreation, carbon sequestration, etc. NOT for fiber. Because of this, the recommendations of the Beschta report deserve much more careful consideration and should be followed.

Plant at low density to extend the early seral community and avoid future stand management costs.

Please replant at a fairly low density and avoid the need for future thinning and other stand management costs. Let's be patient and allow these stands recover slowly as diverse early seral communities. Diverse early seral plant communities are becoming less common and we should encourage slow and easy regeneration of forest communities. This is consistent with the research being done by Nathan Poage which indicates that many stands developed over much longer time periods than we typically allow under the agricultural model of forest management.

CUMULATIVE EFFECTS

The EIS fails to fully disclose the cumulative effects of livestock grazing, timber harvest, prescribed fire, and road developments on water quality, forest health, wildlife habitat, noxious weeds, cultural resources, and other resources.

> Compound disturbances have the potential to fundamentally alter an ecosystem structure and function. This study examines the effects of a natural disturbance and a compounded natural and anthropogenic disturbance on soil properties, biogeochemical cycles, and ecosystem reorganization in a windblown and

> salvage-logged ecosystem in northwestern Colorado. Areas of intact forest are used as a control to compare the disturbance effects. Results indicate that soils in the salvage-logged areas are drier, significantly warmer, denser, and contain less organic matter than soils in blowdown or control areas. Significant amounts of erosion occurred in the salvage-logged areas to produce these results. Furthermore, net nitrogen mineralization rates are lower in soils from salvage-logged areas than in blowdown areas. By contrast, net nitrogen mineralization rates are twice as high in blowdown areas than in control areas. Seedling density, herbaceous cover, and plant species diversity are greatest in blowdown areas, and least in salvaged-logged areas. The results of this four-year study indicate that the mitigation effects of salvage logging significantly alter ecosystem functions and retard the rate of recovery when compared to unlogged blowdown areas. Cooper-Ellis, S., D. R. Foster, et al. (1999). "Forest response to catastrophic wind: Results from an experimental hurricane." Ecology 80(8): 2683-2696.

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Faulty analysis of reburn potential.

The EIS considers leaving large numbers of snags to be unsafe and paints an undesirable scenario with respect to the no action and restoration alternatives, but the EIS fails to acknowledge the fire risks associated with salvage logging including: (a) salvage logging will remove most of the largest logs that are least prone to burn, (b) salvage logging leave behind almost all of the smallest material which is most prone to burn, (c) the proposed action may lop and scatter the tops of large trees that are too big for the ground-based harvest machinery, (d) salvage logging equipment and workers could start fires, (e) increased access increase the risk of human caused ignition, (f) the replanting will create a fuel load that is dense, uniform, volatile, and close to the ground. During an extreme weather conditions this is one of the most extreme fire hazards in the forest.

The EIS also fails to disclose that NOT salvage logging (e.g., natural recovery) may have some counter-veiling benefits in terms of fire risk and reburn potential, including: (a) large logs store water, (b) standing snags provide some shade, (c) regrowth tends to be more patchy and less dense and continuous, (d) fuels in the form of branches and dead trees fall to the ground slowly over time and have a chance to decay as they added, (e) falling snags over time ten to break up the continuity of fuels in the form of brush and reprod.

A 1989 study by Forest Service researchers M.P. Amaranthus, D.S. Parrish, and D.A. Perry ("**Decaying Logs as Moisture Reservoirs After Drought and Wildfire**") found that large down logs in a post-fire landscape contain 25 times more moisture than the surrounding soil. While the authors recommended preventing large accumulations of "woody residue" (which the author described as very small diameter material--branches, twigs, etc.), they also recommended leaving down logs after fires to PREVENT future fire severity. They concluded that, "When forest managers are analyzing for fire risk,

they should take into account the high water content of fallen logs during the period in which wildfire potential is greatest ... Fallen trees, in a range of decay classes, therefore provide a long-term reservoir of moisture. A continuous supply of woody material left on the forest floor, not only protects the productive potential of the forest soil, but also provides a sanctuary for ectomycorrhizae and a significant source of moisture in the event of prolonged drought or wildfire." The study was conducted in the Klamath region in an area with roughly 40 inches of annual rainfall. It was published in 1989 in Proceedings of Watershed '89: a conference on the stewardship of soil, air and water resources. USDA Forest Service, Alaska Region: pp. 191-194 (1989).

Landscape fire

Fire is largely driven by weather conditions. Salvage logging is highly unlikely to affect fire behavior at a landscape scale and will therefore fail to achieve this project's purpose and need.

"The federal government reports that 70 million acres of federal lands need immediate thinning and another 140 million acres must be thinned soon. The president's plan to thin 25 million acres in the next 10 years will cost as much as $4 billion yet leave nearly 90 percent of those acres untreated," according to Jerry Taylor, the CATO Institute's Director of Natural Resource Studies, "A recent Forest Service report estimates there are just 1.9 million high-risk acres with homes and other structures near federal lands. To defend homes and communities, we should treat those acres and fireproof the homes. That could be done in just one or two years at a tiny fraction of the cost of the president's plan." (Administration's Forest Plan Doomed to Fail, ***"Forests Initiative" Will Leave 90 Percent of Acres Vulnerable to Fires, 5/20/03;*** http://www.cato.org/new/05-03/05-20-03r-2.html, http://www.cato.org/dailys/09-07-02.html)

It is arbitrary and capricious to spend billions on a program that essentially fails to address the problem. This timber sale project is a microcosm of the larger issue identified here. Until the larger issue is dealt with, this significant issue requires an EIS.

Landscape fuel treatments are not likely to influence fire behavior at a landscape scale. The proposed action proposes to treat fuels at a landscape scale and cause significant soil damage, wildlife habitat disturbance, and hydrological effects, yet only reduce extreme fire hazard by a small degree across the project area. This fuel reduction benefit will only be realized during ideal weather conditions but will have virtually no effect during the most extreme fire conditions. This level of fire hazard reduction is a drop in the bucket, and the NEPA analysis fails to balance the minute level of benefit in terms of fire risk reduction against the great level of soil, water, and wildlife impacts.

The small amount of fuel reduction benefits from this project are also short-lived and will last only about 10-15 years at which point another entry will be required. So all the soil, wildlife, and watershed impacts will be repeated again and again and probably still not stop the big fire from burning it all down during extreme weather conditions that humans cannot control. We have to stop kidding ourselves. On the day of the big fire (and it will

come), the difference between the action alternative and the no action alternative is almost nothing, but if the agency instead focused on careful and conscientious treatment in the community zone, maybe the homes and communities can be saved.

The agency should focus fuel reduction efforts within 1/4 mile of the homes and communities and prepare an EIS to more carefully balance the competing interests here (soils, fuels, etc). Jack Cohen's work clearly shows that the most important steps to be taken to protect home and communities are not at the landscape level but at the homesite and immediately adjacent to the homesite. See USDA Forest Service Gen. Tech. Rep. PSW-GTR-173. 1999 and the publications listed here: http://www.firelab.org/fbp/fbresearch/wui/pubs.htm

Outside the community zone the Forest Service should focus on restoration using non-commercial treatment using hand crews and prescribed fire. The Forest Service must focus on treatment that can be maintained, and do not required repeated entries with heavy equipment that will violate soil standards and exacerbate concerns about hydrology, wildlife, weeds and water quality.

The agency also seems to forget that much of the project area is made up of plant communities that naturally burn at high intensity. No amount of thinning is going to radically alter this natural phenomena over the scale of the next 50-100 years.

Since the benefits of fuel reduction will not be realized during the most extreme fire conditions. The agency must consider what is the likelihood that sometime during the next 50-100 years, there will be a large fire during extreme conditions. If there is a significant risk of that occurrence, then all the soil damage, hydrologic degradation, weed infestations, and wildlife disturbance (of this project and many that will be needed in the future) will be for naught. This is a very significant issue, not only for this project but for many others as well. The agency should do an EIS to consider these weighty issues.

Plantations are a fire hazard

Post fire logging often leaves simplified young forests that resemble plantations that result form clearcutting. Plantations are more susceptible to severe fire effects than unmanaged older forests (DellaSala et al. 1995, Weatherspoon & Skinner 1995). It is also highly likely that the patchiness that would result from natural recovery would be more resilient to fire than the homogenous sea of interlocking young tree branches that would result from salvage. The increased susceptibility of plantations to severe fire is due to:

- Structural characteristics that promote high heat energy output by fire (Sapsis & Brandow 1997).
- Warm, windy and dry microclimates compared to what would exist in an unlogged burned forest that possessed more structural diversity and ground shading (Countryman 1955, van Wagtendonk 1996).

- Accumulations of large volumes of fine logging slash on the ground surface (Weatherspoon & Skinner 1995).

The number and distribution of plantations resulting from industrial timber management likely has altered fire behavior and effects at both stand and landscape scales (Hann et al. 1997, Huff et al. 1995). Perry (1995) suggests that the existence of a threshold proportion of highly combustible even-age tree patches on a forest landscape creates the potential for "a self-reinforcing cycle of catastrophic fires." In addition, most plantations occur next to roads that spread invasive and exotic plants (DellaSala & Frost 2001) and increase the risk of human-caused ignitions during hot, dry conditions (USDA 2000).

The NEPA analysis also tries to excuse salvage based on the reburn hypothesis, but the NEPA analysis fails to consider that they are only removing the commercial sized trees and leaving behind the more hazardous small material. IF there is a reburn problem, the agency is making it worse instead of better.

Vegetation recovery. Contrary to the agency assertions salvage will alter the successional pathways and disrupt natural recovery of the forest. It is important that snags be left well-distributed within the fire area. As snags fall over during subsequent years (even after decades in same cases), they damage and kill some of the young trees that may have become established in the fire area and help to thin the trees out. Without well-distributed snags, this thinning mechanism is lost. Forest Service scientists are interested in this issue:

> How much thinning is due to competition, snag and big limb fall (in post-fire sites), snowdown, bugs/bears/other animals, root rots, wind, and perhaps other processes? What are the implications of these early successional effects on stand composition and structure for development of old forest composition and structure? One hypothesis is that snag/big limb fall was an important and greatly under-appreciated process that strongly influenced early stand dynamics and stocking in young forests established after wildfire. One reason we don't have a sense of this process is that we see so few young stands that have a full complement of snags left after fire. Our mental images of young stands come from clearcuts.

http://www.fsl.orst.edu/lter/research/component/disturb/summary.cfm?sum=dstrbyr5&topnav=60

Soils. Contrary to the Forest Service assertions, ground-based logging on fire-affect forestland will cause detrimental soil impacts that are inconsistent with the recommendations of the Beschta report. Studies have shown again and again that the agencies are often wrong in its wishful thinking that ground-based logging can be mitigated to avoid detrimental soil impacts. This logging is proposed on soils that are seriously affected by fire and are less resilient than most forest soils that have not been recently subjected to fire. The agency cannot rely on soil science that is derived from unburned sites.

No Road-building Please

> Nothing is worse for sensitive wildlife than a road. Over the last few decades, studies in a variety of terrestrial and aquatic ecosystems have demonstrated that many of the most pervasive threats to biological diversity - habitat destruction and fragmentation, edge effects, exotic species invasions, pollution, and overhunting - are aggravated by roads. Roads have been implicated as mortality sinks for animals ranging from snakes to wolves; as displacement factors affecting animal distribution and movement patterns; as population fragmenting factors; as sources of sediments that clog streams and destroy fisheries; as sources of deleterious edge effects; and as access corridors that encourage development, logging and poaching of rare plants and animals. Road-building in National Forests and other public lands threatens the existence of de facto wilderness and the species that depend on wilderness.

http://www.wildrockies.org/WildCPR/reports/ECO-EFFECTS-ROADS.html

See also NRDC Report: "End of the Road: The Adverse Ecological Impacts of Roads and Logging: A Compilation of Independently Reviewed Research" (1999) which discusses the fact that roads:

1. Harm Wildlife
2. Spread Tree Diseases and Bark Beetles
3. Promote Insect Infestations
4. Cause Invasion by Harmful Non-native Plant and Animal Species
5. Damage Soil Resources and Tree Growth
6. Adversely Impact Aquatic Ecosystems

Temporary Roads

For the semi-permanent roads that will be tilled, BLM's own soils scientist has little faith in the restorative value of this technique. He says: "What I have seen so far have been nothing more than modified rock rippers and little lateral fracture of the soil occurs and the extent of de-compacting is very limited." Coos Bay BLM, Big Creek Analysis file, section F, Soils Report. page 4.

BLM assumes that temporary and semi-permanent new roads will have no effect because they are temporary. BLM has shown no scientific evidence for this assumption. In fact, scientific research has shown exactly the opposite. Effectiveness of Road Ripping in Restoring Infiltration Capacity of Forest Roads. Charles H. Luce, USDA Forest Service Intermountain Research Station, 1221 S. Main, Moscow, ID 83843. September 1996. Restoration Ecology, Vol. 5, No. 3. page 268.

Research results, published in *Restoration Ecology*, shows there is nothing temporary about temporary roads, and that ripping out a road is NOT equal to never building a road to begin with. "The saturated hydraulic conductivity of a ripped road following three rainfall events was significantly greater than that of the road surface before ripping...

most saturated hydraulic conductivities after the third rainfall event on a ripped road were in the range of 22 to 35 mm/hr for the belt series and 7 to 25 mm/hr for the granitics. These conductivities are modest compared to the saturated hydraulic conductivity of a lightly disturbed forest soil of 60 to 80 mm/hr." id. Even this poor showing of restoring pre-road hydrologic effects worsened with repeated rainfall. "Hydraulic conductivity values for the ripped treatment on the granitic soil decreased about 50% with added rainfall ($p(K1=K2)=0.0015$). This corresponded to field observations of soil settlement and large clods of soil created by the fracture of the road surface dissolving under the rainfall... The saturated hydraulic conductivity of the ripped belt series soils also dropped from its initial value. Initially, and for much of the first event, the ripped plots on the belt series soil showed no runoff. During these periods, run-off from higher areas flowed to low areas and into macropores.... Erosion of fine sediment and small gravel eventually clogged these macropores... Anecdotal observations of roads ripped in earlier years revealed that after one winter, the surfaces were nearly as solid and dense as the original road surfaces." Id. Even though ripped roads increase water infiltration over un-ripped roads, it does not restore the forest to a pre-road condition. "These increases do not represent "hydrologic recovery" for the treated areas, however, and a risk of erosion and concentration of water into unstable areas still exists." Id.

WATER QUALITY

Salvage activities will further degrade a water quality listed streams such as the Little Malheur River. The EIS seems to claim that the direct sediment input from timber harvest in addition to any other sources of sediment will be sufficiently mitigated by the use of Best Management Practices (BMPs). While the use of BMPs is to be encouraged in timber projects, we note that the use of these measures are not themselves sufficient to ensure compliance with the Clean Water Act (CWA). *Northwest Indian Cemetery Protective Ass'n v. Peterson* 795 F.2d 688, 697 (9th Cir. 1986) (holding that compliance with BMPs does not equate to compliance with the CWA). Indeed, the agency assumes that the implementation of BMPs will sufficiently mitigate any problems that the proposed project will have on aquatic systems, but offers no proof of this assertion. Consequently, this assumption is flawed and violates the law.

A recent case in Montana affirmed that further degradation of water quality in streams that are already out of compliance with water quality standards is unacceptable unless baseline data is available showing the assimilative capacity of local streams will not be exceeded by the logging (e.g., a TMDL must be prepared). See Sierra Club v. Austin, (D. Montana, April 30, 2003)
http://www.johnmuirproject.org/Opinions/Sierra%20Club%20Lolo%20Burn%20Order.pdf

A recent USDA Office of the Inspector General Report concluded that reliance on speculative mitigation measures in order to reach a FONSI significantly compromised environmental quality. OFFICE OF INSPECTOR GENERAL, U.S. DEPT OF AGRIC., EVALUATION REPORT NO. 08801-10-AT: FOREST SERVICE TIMBER SALE ENVIRONMENTAL ANALYSIS REQUIREMENTS (1999). The OIG concluded that:

> Applicable mitigation measures contained in 10 of 12 decision notices and referenced environmental assessments reviewed, were not always implemented. In addition, mitigation measures were either omitted or incorrectly incorporated into 4 of 12 accompanying timber sale contracts. These mitigation measures are designed to reduce the adverse impacts of timber sale activities on the environment. Generally, mitigation measures were not implemented due to district personnel (a) not being familiar with the mitigation measure contained in the environmental documents, (b) not adequately monitoring actual implementation of the mitigation measures, (c) not comparing timber sale contract clauses with the applicable environmental documents and, (d) oversight. As a result, streams, wildlife habitat, heritage resources, water quality, and visual quality were or could be adversely affected. In addition, "Findings of No Significant Impact" conclusions (i.e. that there was no significant affect on the quality of the human environment) were questionable . . . Timber sale field visits disclosed that mitigation measures designed to protect key resource areas were not adequately implemented. The measures involved mitigation of riparian areas and stream management zones, wildlife habitat, heritage resource sites, visual quality, and soils.

Until the agency is able to substantiate its proposed mitigation measures - i.e., that they are appropriate, will be implemented, and will be effective - the agency must withdraw the proposed project.

Further logging in this watershed threatens further violations of state water quality standards. This triggers an EIS and also requires that a TMDL/water quality management plan precede further actions that could increase stream temperature, nutrients, or sediment.

The EIS must address the cumulative effects of logging and grazing on water quality and discuss the fact that further grazing will retard the attainment of riparian and aquatic management objectives in violation of the applicable land management plan as amended.

SOILS CONCERNS

According to the regional guidelines soils in 80% of an activity area must be maintained in a non-compacted, non-displaced, and non-puddled condition. In an LSR, this standard is far too permissive. Soils must be "maintained," not "mitigated" or "restored" to attain LSR objectives. Mitigation such as soil ripping should not be used as an excuse for violation of the regional soil guidelines.

Scarification, ripping, and subsoiling does not alleviate the following negative impacts, therefore not completely mitigating:

- compaction of soil and alteration of the soil ecosystem;
- alteration of hydrology, water storage, flow, timing, from soil compaction;

- alteration or loss of native plant communities, and tendency to create conditions which favor noxious weeds or other non-native plants;
- disruption of soil foodweb and biotic communities that serve important soil functions and processes such as aeration, nutrient cycling,

Soil productivity must be zealously guarded in order to protect our forests for future generations. This project will cause unacceptable impacts to soil resources. Use of ground-based logging equipment almost always compacts soil causing reduced site productivity, drastically altered soil food web relationships, reduced infiltration, and increase surface runoff. Spring burning can also be very harmful to soil and the thousands of creatures that live all or part of their lives in the soil profile. The EA needs to consider these impacts and consider alternative ways to avoiding these impacts.

Ground-based logging causes higher incidences of root damage and scarring of residual trees (compared to skyline systems). Kellog, L., Han, H.S., Mayo, J., and J. Sissel, "Residual Stand Damage from Thinning— Young Stand Diversity Study," Cascade Center for Ecosystem Management. Helicopter logging creates significant soil damage through extra large landings needed to store large amounts of logs and slash.

Soil disturbance caused by logging also causes erosion that adversely impacts both soil and water resources. The existing level of soil disturbance has not been measured and disclosed in the EA so the Agency cannot say with any factual basis whether forest plan standards will be met. This is arbitrary and capricious. Existing soil impacts must be measured and future impacts estimated so that an adequate cumulative effects analysis can be prepared and included in a supplemental EIS.

In modern forestry, soils are chronically impacted yet very slow to recover leading to cumulative impacts. Cumulative soil impacts caused by this project and all past and future projects (including livestock grazing, roads, landings, fuel treatments, fires, OHVs etc) is also significant issue. See
http://www.cof.orst.edu/cof/teach/for341/Cumulative%20Effects%20of%20Forestry%20on%20Soils/CHAPT6Soils.htm. An EIS is needed to address these significant soil issues.

Respect the soil foodweb

In undisturbed ecosystems, the soil foodweb is a tightly coupled below-ground ecosystem that directly affects many above ground processes such as succession, plant establishment and growth, and erosion and water quality.

In a forest, this below-ground ecosystem is fed primarily by photosynthates exuded from the fine roots of trees. These photosynthates feed a plethora of bacteria and fungi species which feed thousands of arthropod and nematode species and so on. Each species fills a niche and represents both a sink and a source and of nutrients for other organisms. Logging will kill trees and cut off the supply of photosythate which forms the basis of this food web, so the tightly coupled nutrient retention systems will be disrupted, allowing nutrients to "leak" from the system. After a fire all the living (and dying trees)

play an essential role in feeding the below ground ecosystem until more of the above ground ecosystem recovers.

Burning slash piles also kills the below ground ecosystem and soil compaction from road building and other heavy equipment kills or destroys habitat for many soil dwelling species and shifts the below ground ecosystem form aerobic to anaerobic.

The NEPA document fails to consider these significant effects.

Soil Foodweb Significance

The structure and function of the soil foodweb has been suggested as a prime indicator of ecosystem health (Coleman, et al. 1992; Klopatek, et al. 1993). Measurement of disrupted soil processes, decreased bacterial or fungal activity, decreased fungal or bacterial biomass, changes in the ratio of fungal to bacterial biomass relative to expected ratios for particular ecosystems, decreases in the number or diversity of protozoa, and a change in nematode numbers, nematode community structure or maturity index, can serve to indicate a problem long before the natural vegetation is lost or human health problems occur (Bongers, 1990; Klopatek et al. 1993).

Soil ecology has just begun to identify the importance of understanding soil foodweb structure and how it can control plant vegetation, and how, in turn, plant community structure affects soil organic matter quality, root exudates and therefore, alters soil foodweb structure. Since this field is relatively new, not all the relationships have been explored, nor is the fine-tuning within ecosystems well understood.

Regardless, some relationships between ecosystem productivity, soil organisms, soil foodweb structure and plant community structure and dynamics are known, and can be extremely important determinants of ecosystem processes (Ingham and Thies, 1995). Alteration of the soil foodweb structure can result in sites which cannot be regenerated to conifers, even with 20 years of regeneration efforts (Perry, 1988; Colinas et al, 1993). Work in intensely disturbed forested ecosystems suggests that alteration of soil foodweb structure can alter the direction of succession. By managing foodweb structure appropriately, early stages of succession can be prolonged, or deleted (Allen and Allen, 1993). Initial data indicates that replacement of grassland with forest in normal successional sequences requires alteration of soil foodweb structure from a bacterial-dominated foodweb in grasslands to a fungal-dominated foodweb in forests (Ingham, E. et al, 1986 a, b; 1991; Ingham and Thies, 1995).

…

…Without doubt, plant establishment, survival and successional processes are influenced by these soil organisms

Soil processes are important for maintaining normal nutrient cycling in all ecosystems (Coleman et al., 1985; Dindal 1990; Ingham, E. et al. 1986a, b). Plant growth is dependent on the microbial immobilization and soil foodweb interactions to mineralize nutrients. In undisturbed ecosystems, the processes of immobilization and mineralization are tightly coupled to plant growth but following disturbance, this coupling may be lost or reduced. Nutrients may be no longer retained within the system, causing problems for systems into which nutrients move (Ingham and Coleman, 1984; Hendrix et al. 1986; Nannipieri et al. 1990). Measurement of disrupted processes may allow determination of a problem long before normal cycling processes are altered, before the natural vegetation is lost, or human health problems occur. By monitoring soil organism dynamics, we can perhaps detect detrimental ecosystem changes and possibly prevent further degradation.

Immobilization of nutrients in soil, i.e., retention of carbon, nitrogen, phosphorus, and many micronutrients in the horizons of soil from which plants obtain their nutrients, is a process performed by bacteria and fungi. Without these organisms present and functioning, nutrients are not retained by soil, and the ecosystem undergoes degradation. Thus, to assess the ability of an ecosystem to retain nutrients, the decomposed portion of the ecosystem, i.e., active and total fungal biomass, and active bacterial biomass must be assessed.

Ingham, Elaine, **The Soil Foodweb: It's Importance in Ecosystem Health**
http://www.rain.org/~sals/ingham.html

Weeds

On Earthday 2003 Chief Dale Bosworth said that more attention needs to be paid to beating back invasive species. Opening up the canopy and disturbing the soil through road building and logging as proposed in this project could spread non-native weeds far and wide. The invasive weed sites in the analysis area and along all log and gravel haul routes should be fully inventoried and documented as part of the NEPA process for this project . In the absence of valid and complete weed survey information, harvest and road and fuel treatment activities planned as part of this project might exacerbate the problem instead of contain it.

We find it highly unlikely that conducting ground disturbing activities over so many acres of this planning are will not make the weed problems worse instead of better. These weeds are "a slow motion explosion" that should not be taken lightly. It is often better to just close roads and avoid ground disturbing activities while sending crews in to do hand-pulling of weed infestations as necessary.

Protect Forests as Carbon

On August 1, 2000 the US government submitted it's position on land use and forestry as it related to carbon sequestration and it "Proposes strong incentives to remove carbon

from the atmosphere through sound land management and to **protect existing reservoirs of carbon, for example those in mature forests**." The submission also: "Strongly supports rules -- including definitions of key terms such as reforestation -- that help protect forests and avoid creating "perverse incentives" (for example, to log old growth forests)."
http://www.state.gov/www/global/global_issues/climate/fs-000801_unfccc1_subm.html

Migratory Bird Treaty Act

In Humane Society of the United States v. Glickman, No. 99-5309 (D.C. Cir. July 18, 2000), the appeals court held that the USDA violated the MBTA § 703 when it took protected geese species without a permit and that federal agencies must obtain permits from DOI like any other person who takes migratory bird species. If conducted during the nesting season, the proposed harvest of timber will very likely kill nesting migratory birds in violation of the Migratory Bird Treaty Act.

The US government has also taken the position in international tribunals that logging activities can lead to MBTA liability. (Section 5.3.1 "logging that kills birds will be prosecuted"). See Final Factual Record for Submission SEM-99-002 (Migratory Birds); Prepared in Accordance with Article 15 of the North American Agreement on Environmental Cooperation. April 22, 2003.
http://www.cec.org/files/pdf/sem/MigratoryBirds-FFR_EN.pdf
http://www.cec.org/citizen/submissions/details/index.cfm?varlan=english&ID=64

Executive Order 13186, Fed Reg January 17, 2001 requires that all federal agencies:

1. "support the conservation intent of migratory bird conventions … by avoiding or minimizing … adverse impacts to migratory bird resources" [e.g. habitat]
2. "restore and enhance the habitat of migratory birds"
3. "prevent or abate the … detrimental alteration of the environment for the benefit of migratory birds"
4. "design migratory bird habitat and population conservation principles, measures, and practices, into agency plans and planning processes …"
5. "ensure the environmental analyses of Federal actions as required by NEPA … evaluate the effects of actions and agency plans on migratory birds …"
6. "identify where unintentional take reasonably attributable to agency actions is having, or is likely to have, a measurable negative effect on migratory bird populations … With respect to those action … lessen the amount of unintentional take"
7. "inventory and monitor bird habitat and populations"
8. "recognize and promote the economic and recreational values of birds"
9. "each agency is encouraged to immediately begin implementing the conservation measures set forth above"

http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2001_register&docid=01-1387-filed

Be sure to protect the following bird species of conservation concern to the U.S. Fish & Wildlife Service:

Table 8. BCR 5 (Northern Pacific Forest–U.S. portions only) BCC 2002 List.
Yellow-billed Loon
Black-footed Albatross
Northern Goshawk (resident *laingi* ssp. only)
Peregrine Falcon (including resident *pealei* ssp. in Alaska)
Black Oystercatcher
Whimbrel
Long-billed Curlew
Marbled Godwit (*beringiae* ssp. only)
Black Turnstone
Surfbird
Red Knot
Rock Sandpiper
Short-billed Dowitcher
Caspian Tern
Arctic Tern
Aleutian Tern
Marbled Murrelet (except where listed as Threatened)
Kittlitz's Murrelet
Yellow-billed Cuckoo
Flammulated Owl
Black Swift
Rufous Hummingbird
Lewis's Woodpecker
White-headed Woodpecker
Olive-sided Flycatcher
Horned Lark (*strigata* ssp. only)
Vesper Sparrow (*affinis* ssp. only)

USFWS. Birds of Conservation Concern 2002. Arlington, Virginia. December 2002.
http://migratorybirds.fws.gov/reports/BCC2002.pdf

Request for Correction of Information

- **This Request for Correction of Information is Submitted Under USDI's Information Quality Guidelines.**

- **Requestor Contact Information**
  Doug Heiken, Oregon Natural Resources Council
  PO Box 11648, Eugene Oregon 97440;
  541-344-0675 voice; 541-343-0996 fax; dh@onrc.org.
- **Description of Information to Correct**
  Publication: Timbered Rock Fires Salvage and Elk Creek Watershed Restoration Draft EIS

Date of issuance or URL: Notice of Availability Published August 15, 2003, EIS available here: http://www.or.blm.gov/Medford/timbrockeis/index.htm

Description of the information for which a correction is being sought: The DEIS falsely claims that the preferred alternative is consistent with the Northwest Forest Plan ROD, and the South Cascades LSR, and other policy requirements.

- **Explanation of Noncompliance with OMB and/or USDI Information Quality Guidelines** The Timbered Rock DEIS is not objective or useful (as defined below) because:
  - The DEIS fails to explain how the commercial removal or large quantities of large logs will meet the desired future condition described in chapter 4 of the South Cascades LSR Assessment.
  - The ecological values of large vs. small snags and logs are not presented in an accurate, clear, complete, and unbiased manner.
  - The DEIS lacks any criteria to determine live, dead or dying tree.
  - The DEIS fails to use the method of analysis described in the LSR Assessment for determining whether there is any woody material available for salvage, i.e. material in "excess" of "typical" levels (the median live tree density for the plant series).
  - Whether and how the BLM retained sufficient snags to meet requirements in 100 years and how BLM accounted for snag dynamics during "the full period before the new stands begins to contribute large snags and CWD" is unclear.
  - The need to maintain sufficient quantities of large snags to serve ecological needs in the future distant is not presented in an accurate, clear, complete, and unbiased manner.
  - The many ecological, hydrological and other values of dead wood were not presented in an accurate, clear, complete, and unbiased manner.
  - The DecAID Advisor is not a time dynamic simulator and the EIS does not present the information form this tool in an accurate, clear, complete, and unbiased manner.
  - The fire risk of retaining virtually all snags less than 16 inches in diameter and creating abundant fine fuels during the logging operation is not presented in an accurate, clear, complete, and unbiased manner.
  - The ineffectiveness of removing the largest snags (in terms of fire hazard reduction) is not presented in an accurate, clear, complete, and unbiased manner.
  - The spatial distribution and relative degree of fire risk in different time periods in the future and under the different management alternatives is not presented in an accurate, clear, complete, and unbiased manner.
  - How the preferred alternative will meet Late Successional Reserves standards & guidelines and attain Aquatic Conservation Strategy objectives is not presented in an accurate, clear, complete, and unbiased manner.

  - How the preferred alternative will manage spotted owl critical habitat to retain options for recovery is not presented in an accurate, clear, complete, and unbiased manner.
  - How the preferred alternative will retard development of high quality late-successional old-growth habitat and lead to the development of lower quality habitat is not presented in an accurate, clear, complete, and unbiased manner.
  - The ineffectiveness of mitigation intended to prevent soil erosion and sedimentation is not presented in an accurate, clear, complete, and unbiased manner.
  - The EIS fails to explain how it is meeting the LSRA limits on salvage (i.e., 1% of the LSR by administrative unit or 200 acres for the Medford BLM).
  - The DEIS fails to explain how the "historic range of variability" of fish populations can be used to determine whether the proposed action is likely to adversely affect fish and why the short-term increase in sediment is not a problem for sediment sensitive fish species with currently degraded habitat, currently depressed populations, and short life-cycles.
- **Explanation of the Effect of the Alleged Error on ONRC's use of the information**: ONRC uses the DEIS to become informed about the environmental impacts of the proposed action and to participate in BLM decision-making under NEPA. The requirements of the Northwest Forest Plan, the LSR Assessment, the federal register notice setting forth spotted owl critical habitat, and the draft spotted owl recovery plan set forth decision-making criteria that reflect environmental considerations, that the BLM appears to have forgotten or misapplied. ONRC will be able to participate more effectively and ensure BLM accountability if the DEIS contain accurate, clear, and complete information.

How ONRC is affected by the error: ONRC and the public are unable to fully understand or determine BLM's compliance with the environmental and policy requirements.

Recommendation and Justification for How the Information Should Be Corrected

See the detailed EIS comments set forth above for an explanation of how the information should be corrected.

Thank you for the opportunity to comment. Please send a copy of the new DEIS to both ONRC and Sierra Club. (You cannot possibly base an FEIS on this faulty DEIS. *ONRC Action v. USFS* (D. Or 2003)).

Sincerely,

/s/

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/s/

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Headwaters

To conserve, protect and restore forest ecosystems, clean water, and biological diversity in the Klamath-Siskiyou Bioregion.

October 15, 2003 by email and fax

Lance Nimmo, Field Manager
Butte Falls Resource Area
Medford District Bureau of Land Management
3040 Biddle Road
Medford, Oregon 97504

RE: Timbered Rock Fire Salvage and Elk Creek Watershed Restoration DEIS

Dear Mr. Nimmo:

Thank you for the opportunity to provide comments on BLM's Timbered Rock Fire Salvage and Elk Creek Watershed Restoration DEIS (Timbered Rock/Elk Creek DEIS). The Timbered Rock/Elk Creek DEIS was advertised in the *Medford Mail Tribune* with a comment deadline of October 15, 2003. As a result, our comments must be considered timely. Headwaters and its members are vitally interested in land management decisions on public lands administered by the BLM, including those located within the proposed project area.

Headwaters is a non-profit organization comprised of hundreds of individuals dedicated to protecting the forests and rangelands, fish and wildlife, and creeks and streams of Oregon. The decisions reached by BLM based upon this DEIS will affect Headwaters member's ability to use and enjoy the lands in the Timbered Rock/Elk Creek DEIS project area.

Our organization and its members believe that the primary purpose of federal land management should be to maintain and/or restore biological integrity. Projects proposed by the land management agencies, including the Bureau of Land Management, should focus on restoring biological, physical and chemical processes and functions so as to ensure the long-term ecological sustainability of those lands. Commodity production and the pursuit of other beneficial uses should occur only as a secondary by-product, and only when such activities do not impair the land's integrity or hinder its recovery from ecological damage caused by past management and use.

We believe the alternatives offered fail to meet the project purpose and need. Despite the fact that the Timbered Rock/Elk Creek DEIS statement of purpose and need identifies nine objectives (including two - objectives 8 and 9 - that appear simply to be different ways of stating the same objective), the proposed alternatives appear to place undue emphasis on one portion of one objective. That is, it appears an inordinate degree of emphasis was placed on a portion of objective 7 (i.e., recovery of economic value of fire-killed trees) without adequately addressing

either the other element of that objective (i.e., meeting LSR and watershed objectives) or adequately addressing the other objectives. We strongly urge you to reformulate the alternatives to explore the full range of approaches that could be taken to adequately meet all the objectives stated in the Purpose and Need.

Objectives 1 through 4 speak to the agency's desire and obligation to meet conservation goals. As you know, post-fire salvage is considered by many to be ecologically risky and therefore, presumably, such activities would tend to create difficulties in achieving these four objectives. One detrimental impact often associated with logging is accelerated erosion and soil compaction. Published scientific literature has led Headwaters to conclude that, because of the high ecological risk inherent to such activities, post-fire logging is unwise and scientifically unsupportable in severely burned areas, on fragile soils, on steep slopes, on erosive sites or on any site where accelerated erosion is possible. Furthermore, because of extensive peer-reviewed scientific literature documenting the importance of riparian and roadless areas to maintaining the integrity of an already heavily impacted landscape we also have concluded that post-fire logging in these areas is counterproductive to the agency's multiple use obligations. We strongly encourage you to recognize these sensitive areas as unsuitable for post-fire logging and exclude them from such projects in all the action alternatives (B through G), and instead limit your various approaches to post-fire logging to the non-sensitive portions of the landscape.

Given that there is substantial literature to indicate that post-fire salvage brings with it significant ecological risks, we appreciate the inclusion of alternative B that includes only active restoration projects. We strongly suggest, however, that your analysis take into consideration the scientific findings that some "restoration" activities can themselves result in significant ecological problems. Recent literature has found that the rapid re-establishment of dense conifer stands typical of many reforestation efforts tends to substitute spatial uniformity for spatial variability and creates the potential for future uncharacteristic fire behavior. Furthermore, if not carefully designed, fuel hazard reduction and other vegetative treatments also can cause net ecological harm. Effective fuel treatment projects need to simultaneously consider ground, ladder and canopy fuels as well as the retention of large trees of fire resistant species. Most importantly, treatments must avoid the pitfalls of a project design process that considers only the issue of fire and/or trees and instead encompass the needs of the ecosystem as a whole. Restoration treatments must be responsive to the overarching objective of restoring ecological integrity. While we applaud the proposal to replace and remove culverts to alleviate existing fish passage problems, we strongly suggest you consider the findings regarding the lack of temporal stability from constructed fish habitat improvement structures. We urge you to re-evaluate the projects proposed for inclusion in alternative B prior to release of the Final EIS to ensure that the activities included in this "focused restoration" alternative are in fact consistent with the current literature regarding ecological restoration. Such a reexamination also should be conducted for the restoration elements of the other action alternatives.

We also encourage you to respond to the findings in recent literature that naturally recovering post-fire landscapes have enormous ecological importance. Our scientific view of how forests are impacted by and recover from natural disturbances have been dramatically altered by research that began with the 1980 Mount St. Helen's eruption and accelerated by the Yellowstone Fires of 1988. Naturally recovering post-fire landscapes have been found to provide important hotspots of regional biodiversity. Unfortunately, these naturally recovering early successional habitats - with their legacies of snags and logs and diverse open communities of herbs, shrubs, and trees - are a rare successional stage in most regions. We suggest that alternative A (which as the "no action" alternative does not include any salvage, fish habitat improvement, vegetation treatment, fuel treatment, wildlife, or road project activities) could include a research element coordinated either with the PNW or PSW research station or with a university (e.g., Southern Oregon University, Oregon State University, or other institution) to explore and examine questions associated with natural post-fire recovery.

It is apparent that alternative F is intended to explore the cumulative impacts of salvaging pursuant to the recommendations offered by Bestcha et al. (1995). Bestcha et al. (1995) recommended that on those portions of the landscape determined to be suitable for post-fire logging, such activities must leave at least 50% of standing dead trees in each diameter class, leave all trees greater than 20 dbh or older than 150 years, and generally leave all live trees. These authors also recommended that replanting should be conducted only under limited conditions. Alternative F, the option "based on Beschta et al.," is not consistent with the report's recommendations with respect either to salvage or reforestation.

Objectives 5 and 6 speak to the agency's desire to restore ecological resilience and reduce the risk of fire. We suggest that a more appropriate focus for these objectives is the restoration of ecological integrity. There is an important scientific distinction between resilience and integrity, and we contend that integrity is more consistent with the agency's obligations to the land and people. The most resilient land under the administration of the Medford District undoubtedly is your Biddle Road parking lot, however I doubt anyone believes it represents a future condition appropriate for large portions of the landscape. Ecological management objectives should not be focused on establishing landscape conditions with an "automatic reset button," instead they should focus on establishing conditions with high ecological integrity (i.e., where processes - including but not limited to fire - are functional and community components at the species, population and genetic levels are interacting to maintain evolutionary trajectories). We believe more clearly articulating the ecological objectives will necessitate a redesign of the project activities contained in the action alternatives.

Objective 7 has two components, a desire to recover some economic value from fire-killed trees and a desire to meet LSR and watershed objectives. As was mentioned earlier, we believe the second component of this objective is inadequately addressed by the alternatives. In addition, we urge you to address the findings of the report recently released by EcoNW regarding the economics of post-fire logging.

Objectives 8 and 9 both speak to the desire to conduct scientific investigation to answer questions relating to management of post-fire landscapes. We encourage you to incorporate scientific studies focused upon an examination of naturally recovering post-fire landscapes into your alternatives. Substantial literature has examined the effects of salvage and active restoration on post-fire landscapes and many of these questions have been answered. Those questions still outstanding that the BLM would like to investigate could and should be sited upon other areas already subjected to the treatment alternatives outlined in this DEIS. In order to produce credible scientific results, the protocols for any investigations undertaken in the project

area should be developed prior to delineation of the treatment alternatives. It is highly unlikely that a study superimposed upon any of the alternatives offered will produce credible results. The treatment should not dictate the study. The study design must come first, with the treatments planned to answer the well-thought out questions.

We have a number of other concerns related to alternative design. It appears:

- The Northwest Forest Plan LSR standards and guidelines regarding retention of live trees, felling and leaving hazard trees along roads, and criteria for when salvage is allowable are violated.
- The Fuel Management Zone proposals ignore advice provided in the Spring Salvage Timber Sale Level 2 Consultation (March 1998).
- The "pine release" treatments would result in logging in the LSR contrary to the intent of the Northwest Forest Plan.

In addition to the points discussed above, we believe the cumulative effects analysis is inadequate and must be strengthened prior to release of the FEIS. Over 6,000 acres of private land have been logged since the Timbered Rock fire or are slated for post-fire logging. These related private land activities contribute to the cumulative effects - both ecological and economic - that must be considered in this analysis. In addition, significant public land activities have occurred in the past. The Medford RMP concluded that much of this watershed have been so heavily impacted during the 1990s that logging in the area should be deferred to allow recovery from the cumulative impacts of such past activities. The Timbered Rock/Elk Creek DEIS does not adequately address either of these issues in the cumulative effects analysis that is offered.

The project area is widely recognized, including designation both as a LSR and as a Key Watershed. The project area is critically important for a number of ecological reasons. We encourage you to undertake a critical rethinking of the proposals offered in the Timbered Rock/Elk Creek DEIS and significantly retool the proposed alternatives prior to reaching a decision.

Sincerely,

Cindy Deacon Williams
Conservation Director

000018

Ted Kennel
<tedkennel@yahoo.com>
10/15/2003 09:54 PM

To: or110treis@or.blm.gov
cc:
Subject: Comments on Timbered Rock DEIS

Dear Mr. Nimmo:

Thank you for the opportunity to comment on the Timbered Rock Burn Salvage Draft Environmental Impact Statement. I was greatly disappointed to learn that Alternative G is the preferred alternative to the Timbered Rock DEIS. It takes undo advantage of last year's fire to put the health of the timber industry far above the health of the forest.

Alternative G would provide for logging in the Elk Creek Late Successional Reserve. However, under the Northwest Forest Plan, logging can only occur in an LSR where more than 60% of the forest canopy has been killed. Alternative G also would allow for the logging of living trees as well as dead ones, despite the Northwest Forest Plan's prohibition of the taking of such live trees in an LSR. The NWP also calls for logged roadside hazard trees to be left in place. Alternative G insists that the forest floor be denied the nutrients therein, with the logs hauled off to the sawmill instead.

The DEIS is also flawed by its narrow focus on BLM lands in the Elk Creek watershed. The cumulative impacts analysis of the federal logging project seems to ignore the fact that over 6,000 acres of private land were logged in the immediate aftermath of the fire. An additional 24 million board feet of timber removed from the BLM's lands won't have an adverse cumulative impact on the Elk Creek watershed? Back in the 1990's the Medford Resource Management Plan recommended that over 7,000 acres in the watershed be spared the axe due to all of the other logging that had taken place in the Elk Creek up to that time. The forest must have experienced a remarkable recovery in the few short years since!

The Timbered Rock DEIS also feeds the coffers of the timber companies under the guise of the creation of Fuel Management Zones. It can't be for the sake of the forest that FMZs will be created. The Spring Salvage Timber Sale Level 2 Consultation of March 1998 determined that FMZ's were ineffective in stopping the spread of high-intensity fire, serving only to deter the lower intensity ground fires that a forest needs to stay healthy. The tree plantations that will grow in the new FMZs will only serve to make high intensity fires more likely in the area, as their highly flammable young trees replace the more fire resistant old growth trees that were sacrificed for the sake of the timber companies' bottom lines.

The DEIS should not envisage the aiding and abetting of an ill-advised university salvage logging experiment. The forest of the Elk Creek LSR belongs to all Americans and is not the private playground of Oregon State University anymore than it is that of the timber companies. The aforementioned salvage logged private land in the watershed provides ample opportunity for OSU to study the effects of salvage logging. But then that much less timber would be available for the timber companies.

Please put the health of the forest of the Elk Creek LSR first in your post-fire recovery plan. Don't let the occasion of the Timbered Rock fire serve as cover for the pillaging of forest areas that would otherwise be immune to such destruction. As I mentioned above, the Elk Creek LSR belongs to all Americans, not just to the economic interests of the area immediately surrounding it. I myself am from out of state, writing to remind you that you in the BLM have a responsibilty to protect our public lands for the benefit of all, not the profit of a few. I very much hope that you will live up to that responsibility.

Sincerely,

Ted Kennel
395 Richmond Dr., Apt #12
Millbrae, CA 94030

000019

SISKIYOU PROJECT

Siskiyou Regional Education Project—Preserving the Siskiyous for Future Generations of All Species

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OCT 2003
Received
District Office
Medford BLM

October 12, 2003

Tim Reuwsaat, District Manager
Medford District
Bureau of Land Management
Comments, Timbered Rock DEIS
3040 Biddle Road
Medford, Oregon 97504

Regarding: Timbered Rock DEIS

Dear Mr. Reuwsaat,

These comments are submitted on behalf of the Siskiyou Regional Education Project and Klamath Siskiyou Wildlands Center. The Siskiyou Project recommends selection of Alternative B (No Salvage; Focussed Restoration) with the inclusion of a diameter limit of 17 inches for green trees removed and the decommissioning of at least 36 miles of high risk roads over the next 3 years.

The preferred Alternative G is seriously flawed because it does not provide a timetable or certainty of funding for decommissioning of existing, and recently constructed/reconstructed roads that are likely to increase the occurrence of landslides. Conversely, a timetable and certainty of funding has been identified for the logging of fire killed trees and construction of new roads with Alternative G. Post fire logging and road decommissioning must be linked (i.e. funded and implemented simultaneously) to achieve the ACS objective of not allowing increased roads in key watersheds (Elk Creek).

Since the fire, road densities have been increased in the Elk Creek Tier 1 Key watershed. A likely scenario is that many roads on public lands will fail into the stream before they are decommissioned due to at least a 3 year delay to allow logging. Landslides associated with roads are likely to adversely affect coho salmon by burying or scouring eggs and developing alevins. Landslides will also exacerbate stream temperature warming by scouring channels to bedrock. Timely removal (within the next 3 years) of high and moderate risk roads would greatly reduce sediment risk from public lands but would not address similar threats on commingled industrial forest lands. A coordinated effort is needed to reduce the sediment threat to coho salmon in the Elk Creek watershed where high intensity wildfire has increased the risk of landsliding, especially from roads.

Alternative G would log trees on unstable and potentially unstable slopes. Removing trees on steep slopes would deprive streams of much needed large wood and exacerbate the adverse effects of sedimentation on coho salmon. Specifically, please remove all proposed logging (including research units) from transient snow zones, slopes 65 percent or greater, and areas with moderate to high potential for deep seated mass movement (i.e. earthflows).

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Logging impacts are not reversible in the short-term. Thus, a conservative approach to logging in LSR's is needed and logging must not interfere with the timeliness of needed restoration (road decommissioning).

Specific Comments

1. The DEIS failed to adequately disclose the impacts from existing roads, reconstructed roads during fire suppression, and newly constructed roads by Boise Cascade to salvage timber within the fire perimeter.

a. "Post fire road density has increased but it is not known by how much." (DEIS 3-50). The DEIS underestimates the number of new roads constructed and gives no quantification of reconstructed roads since the fire occurred. The DEIS (p. 3-309) states that "[a]t the time of this analysis, the total amount of [new] roads [built by Boise Corporation across public lands] is less than 5 miles" and "about seven miles of new roads on industrial forest lands were created or will be created post-fire to provide access for salvage logging." (DEIS p. 3-50). "Roads previously blocked, closed, or overgrown were opened to provide access for the fire." (DEIS p. 3-50). Side cast reconstruction can be expected to increase risk of landsliding. Actual road densities for the watershed and subwatersheds are likely much higher than reported in Table 3.14-1 (p. 3-209) because "[n]ew roads built for private access after the fire are not in the GIS." (p.3-44). Road densities in the Elk Creek watershed have been increased, contrary to the stated policy: "[t]here is to be no net increase in the amounts of roads in key watersheds."

b. Sediment calculations and debris flow risk excluded private lands. Mass wasting from existing and newly constructed roads can be expected to be high during the next ten years causing severe sedimentation to salmon spawning and rearing areas. Apparently the BLM erroneously believes that since they did not construct these roads they do not have to disclose the physical impacts from them, even though some of the new roads cross federal lands.

c. The DEIS fails to adequately disclose that debris torrents (primarily from roads) will kill fish and damage fish habitat.

The DEIS (p.3-15) identified that channels considered to be at "high risk" [for debris torrents form public lands] are located in Flat Creek (Sections 17 and 29), Middle Creek (Section 29) and Alco Creek (Section 5). The DEIS (p. 3-82) states that "[e]pisodic erosion or mass wasting can produce sediment and cause an adverse effect to fish, similar to chronic effects and on p. 3-92 states that "episodic erosion event would continue to cause a short-term indirect adverse effect to fish from the addition of sediment."
The DEIS fails to disclose that debris torrent scour and deposition would directly kill incubating coho salmon eggs and developing alevins. While debris torrents (flows) are expected to occur in the short term (next 3-10 years) the degradation to fish and fish habitat is likely to be long-term because the channels will either be overwhelmed with sediment (aggraded) in depositional areas or scoured to bedrock.

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Similarly, the DEIS (p. 3-93) fails to adequately describe direct and indirect mortalities from debris torrents from commingled private lands. The DEIS (p. 3-85) merely acknowledges a "short-term indirect adverse effect to fish populations from private land logging and road activities" and a "long-term effect would occur from the lack road decommissioning on private lands." (Impacts to insects rather than to fish are emphasized.) The DEIS fails to estimate the increased sediment and debris torrents on private lands and the likely devastating effects to fish and fish habitat. Due to intensive salvage logging and high road densities on private lands, debris torrents would have longer runouts and lack large wood, both of these factors would intensify adverse impacts.

The DEIS (p. 3-93) misleads by stating that [fish] "populations typically rebound in the short-term from chronic and episodic disturbances." Some populations rebound but many do not (Brown et al. 1994; Frissell 1993). SONC coho salmon often do not "rebound" and logging is one reason why they are listed as a threatened species. The DEIS (3-93) fails to disclose the magnitude of decreases that would result in a "remnant level." Once reduced to a "remnant level" some stream populations could be extirpated for decades.

The DEIS failed to disclose that increased rates of debris torrents may cause fish passage blockages that would be long-term.

The DEIS failed to disclose that debris torrents can topple riparian vegetation and scour streams to bedrock both of which will increase stream temperatures.

The DEIS identifies an economic need to expedite logging of fire killed trees within 3 years (p2-39) because smaller trees lose value over time but the DEIS fails to adequately acknowledge that protection of water quality through removal of high risk roads would be best accomplished within the next 3 years before tree roots deteriorate and increase the risk of landsliding. The DEIS (p.1-12) provides a timeline for logging:"salvage operations could proceed in the summer of 2004 as authorized timber sales", but the DEIS fails to provide a timeline for removing roads in alternative G. Funding is certain for logging but uncertain for road decommissioning: "[m]ost of the restoration projects, including road decommissioning and improvements...would only be implemented through appropriated funds." (p.1-12). A likely scenario is that many roads on public lands will fail into the stream before they are decommissioned due to at least a 3 year delay to allow logging. In the absence of road decommissioning, debris torrents from commingled private lands is a certainty. The consequences to fish of the "log now decommission later" approach in alternative G have not been fully explained to the public or decisionmaker or falsely portrayed (Table 2-2, 2-3 p.2-71, and Figure 3.5-2 p.3-85)

Failure to adequately disclose fish impacts from debris flows (torrents) is a violation of NEPA. A federal district court enjoined virtually all timber sales in the Siuslaw Forest's Mapleton District (National Wildlife Federation v. U.S. Forest Service, 592F. Supp. 931(D. Or. 1984)) Citations from published literature in the DEIS appear to have been selectively used to support the beneficial effects of stream enhancement projects, fire, logging, and roads to fish, thus biasing the impact assessment by failing to adequately disclose negative impacts. For example, the DEIS (p. 3-92 and elsewhere) describes sediment impacts as being beneficial to fish or limited to adverse impacts to insects: "These episodic erosion events [debris flows] would

4

continue to cause a short-term indirect adverse effect of from the addition sediment [decreased insect production]. It [episodic erosion or debris flows] would cause a long-term beneficial direct effect from gravel recruitment and addition of woody material and would cause enhanced fish spawning and rearing." The DEIS p. 3-93 states that "[e]pisodic erosion [debris flows] would provide gravel and wood to streams and would cause a modest increase in fish population survival and production."
The DEIS fails to alert the reader to the adverse effects of debris flows that kill fish and degrade habitat, particularly if landslide prone slopes have been logged.

2. Sediment (primarily from mass wasting of road) is likely to adversely affect coho salmon through decreased egg-to-fry survival, reduced rearing area, increased stream temperatures, decreased food, and adult migration barriers.

The DEIS (p. 3-93) determined that salvage activities "may affect, not likely to adversely affect" SONC coho salmon and critical habitat in regard to implementation of Alternative G. Table 2-2 (p. 2-59) reports "insignificant/discernible effect to fish and fish populations." The DEIS (p. 3-82) states that "episodic erosion or mass wasting can produce sediment and cause an adverse effect to fish" but limits the adverse effects to an often repeated impact of reduced insect (food) production (p. 3-83,85,86,93). The DEIS (p. 3-84) admits that high levels of sediment from natural surface roads or stream banks erosion can potentially limit insect production and suffocate fish" but then falsely states that "[d]irect mortality to eggs from sediment is highly uncertain."

The DEIS (p. 3-83) falsely states and without site specific supporting data that "[t]rout and salmon survival and production would remain unchanged and within the range of natural variability in the watershed" because of riparian buffers on public lands. The DEIS (p.3-85) discounts the anticipated huge (several orders of magnitude) sediment increases from road related mass erosion and states that "[t]he fish populations [will] remain viable and in the range of natural variability regardless of adverse affects from harvest, road, or restoration activities." Apparently the DEIS purports the scientifically indefensible assertion that fish can now withstand any amount of sedimentation and adverse sediment impacts from logging only occurred in the past "when streams were heavily laden with fine sediment from forest practices" (p 3-84).
The DEIS (p. 3-95) also failed to adequately disclose watershed level impacts [i.e. fish declines] from inadequate riparian buffers and high erosion risk roads on private lands.

The DEIS (p. 3-86) falsely states that the no action alternative "[t]here is no long-term benefit for trout or federally-listed threatened coho salmon because of the lost opportunity for road work..." Removal (decommissioning) of high risk roads is a proven technique for reducing sediment impacts to fish and is practiced widely by BLM and others.

The DEIS (p. 3-93 and elsewhere) falsely states that "[fish] populations typically rebound in the short-term from chronic and episodic [erosion] disturbances" and falsely claim without supporting data that "forest practices are a small cause of fish mortality compared to irrigation withdrawals (p.3-84). Brown et al. 1994 found that numerous coho populations in northern California had been extirpated. Logging was identified as a leading cause. Frissell (1993:342) identified watershed and regional extirpations of native fishes in the Pacific Northwest and California: " The

5

simultaneous decline of numerous taxa in basins not afflicted with dams or diversions suggest that cumulative damage to aquatic habitat caused by logging, grazing, urbanization and other land uses play a major role in icthyofaunal declines...Most of these highest-risk areas occur in steep, mountainous landscapes (many formed in granitic rock types) where erosion rates are naturally high and are greatly accelerated by watershed disturbances from logging and other activities."

The DEIS (p. 3-93) falsely states that "[t]rout and salmon population trends would greatly increase in Alternative G" from restoration work in Riparian Reserves. Cutting down green trees from riparian reserves and pulling them into streams (p. 3-93) is not likely to increase fish populations because this woody material would be unstable and not likely to persist because of small size. A large pulse of green vegetation placed into low flow channels could be harmful by increasing oxygen demand for temperature stressed fish. Sediment from road related landsliding could overwhelm any beneficial effects from in channel restoration work.
The assumption that lack of wood in streams can be overcome by dragging small trees and saw logs into the channel has not been demonstrated.

Figure 3.5-2 (p.3-85) and Table 2-2 (p.59) are not useful for decisonmaking because they do not sharply show possible differences in sediment impacts to fish. Instead the DEIS falsely assumes that sediment impacts would be the same for all alternatives.

In determining impacts to fish the DEIS failed to consider the magnitude of expected sediment increases, season and time period of delivery, and type of sediment delivery.

Magnitude
Prior to the fire, "management activities in the basin add almost four times the amount of sediment as background sources" (p. 3-47). Although the "exact amount of sediment" from roads is unknown (p.3-81), the study by Boise Corporation (1999) can be extrapolated to commingled federal lands to obtain a credible estimate (Table 3.4-2). The Boise study clearly shows that mass wasting from roads is the major source of sediment. "Post fire sediment levels are expected to increase by many orders of magnitude." (p.3-50) Increased landsliding predicted to be 6 times higher associated with steeplands in high intensity burn areas (p. 3-24) Predicted sediment increases are clearly outside the range of natural variability due to landsliding associated with roads.

Season and time period of greatest risk
The DEIS failed to adequately consider the adverse effects from increased debris flows (torrents) from existing and newly constructed roads used to log and haul timber. Debris flows occur during the winter when coho salmon eggs are incubating or alevins are developing within the gravel. Debris flows and debris floods initiated on steeplands can run out onto spawning areas and directly kill the incubating eggs and developing alevins.

The time period of greatest risk is 3-8 years after the fire during which tree roots have deteriorated and new vegetation has not established crown cover and roots. The DEIS fails to explicitly describe the consequences of delaying road decommissioning. Specifically, under alternative G, roads are likely to fail into streams before they are decommissioned.

6

Type of Sediment Delivery
Debris flows and debris floods can be particularly harmful to coho streams because they can blow out accumulated wood from the stream channels and onto adjacent floodplains or concentrate wood in migration barriers. Channels can be scoured to bedrock for hundreds of meters. Deep seated mass wasting (slumps) can cause chronic sedimentation and turbidity that persists for decades. The DEIS failed to identify areas with potential for slumping and propose corrective action.

3. The DEIS failed to adequately identify unstable areas and protect them from logging and roads.

An extensive analysis of mass wasting for the entire Elk Creek Watershed by Boise Cascade Corporation (Boise 1999) identified "large-persistent deep-seated slides" (DEIS p 3-11) that are indicative of slump-earthflow terrain. "Earthflows qualify as unstable and potentially unstable areas and would be analyzed for inclusion within Riparian Reserves for intermittent streams" USDA and USDI 1994: B-24. The High Risk Landslide Potential map 3-2 (p. 3-13) does not include slump earthflow terrain that is potentially unstable. The areas of high risk need to be expanded to include steep slopes (>65%) because "slides occurred most frequently on steep slopes (>65%) in concave slope morphology" after the 1987 Burnt Peak fire (DEIS 3-11).

High landslide risk areas must be included as riparian reserves and not logged. Several high landslide risk areas (Map 3-2) appear to be proposed for salvage logging in alternative G (Map 2-6f). A map is needed that shows where salvage logging is proposed on slopes greater than 65 percent.

4. Pacific Lamprey

Pacific lamprey have probably been extirpated from the Elk Creek watershed because only anadromous salmonids have been passed at the dam for at least ten years. Loss of lamprey rearing may be a limiting factor to salmonids because of lamprey effects on the food chain and water quality.

5. Riparian Reserves

Riparian reserves have not been adequately identified with maps or on the ground. The DEIS (p. 3-45) states that "BLM Riparian Reserves will be completed on BLM-administered lands within the fire perimeter" but does not say when this will be accomplished. The adequacy of Riparian Reserve implementation could not be commented on or evaluated in the DEIS because it contains no maps and none have been identified on the ground. Prior to decisions, Riparian Reserve mapping and field identification must be made available to the public for commenting. Since Riparian Reserves have not been identified many salvage logging units may already be located in

7

Riparian Reserves, contrary to the ACS and the proposed actions not to log in Riparian Reserves. A particular concern is the need to identify Riparian Reserves on potentially unstable slopes 65 percent or greater and on slump-earthflow terrain.

6. Size of Trees to be Logged

The DEIS estimates the number of fire-killed trees and the numbers proposed for salvage logging but does not estimate the size classes of trees proposed for logging. Logging old growth trees > 32 inches diameter is an irretrievable and irreversible effect because these large trees would persist for hundreds of years as snags and downed wood. Please disclose in the Final EIS an estimated number of the trees proposed for logging that are 18-32 inches diameter and trees greater than 32 inches diameter. DEIS section 3.19 Irretrievable and Irreversible effects p. 3-229 should include the number of trees greater than 32 inches diameter proposed for logging. Large dead trees are an important component of LSRs and it appears that too many of them are being removed from burned areas. Reporting logging proposals as board feet or trees left on site is necessary but not adequate to fully grasp the impacts being proposed.

7. The BLM RMP logging deferral in Elk Creek must remain in place because the fire and post fire logging/road building has retarded hydrologic recovery, especially on private lands.

References

Brown, L.R., P.B. Moyle, and R.M. Yoshiyama. 1994. Status of coho salmon (Oncorhynchus kisutch) in California. North American Journal of Fisheries Management 14:237-261

Frissell, C.A. 1993. Topology of Extinction and Endangerment of Native Fishes in the Pacific Northwest and California (U.S.A.). Conservation Biology 1993 (2)7:342-354.

Sincerely,

Richard K. Nawa

Richard K. Nawa
staff ecologist

c: Klamath Siskiyou Wildlands Center

KLAMATH SISKIYOU wildlands center

000021

October 15, 2003

Timbered Rock
DEIS ID Team
Medford District BLM
3040 Biddle Road
Medford, OR 97504

RE: COMMENTS ON THE TIMBERED ROCK SALVAGE LOGGING DEIS

> "We concluded that commercial timber sales do not meet the criteria for forest restoration."
> -November 2001 Audit by the Department of Agriculture's Office of Inspector General
>
> "[T]he core team has not found a biological rationale for salvage."
> -South Cascades Late Successional Reserve Assessment
>
> "There is potential risk to watersheds from roads and soil disturbance associated with salvage operations. If hypotheses about the effects of management prove incorrect, salvaged areas may be adversely affected in terms of their short and long-term contributions to the achievement of Late-Sucessional Reserves."
> -South Cascades Late Successional Reserve Assessment
>
> "The projects I've been out on, they are leaving all the big trees and going in for the smaller ones - that is standard practice out there now,"
> -BLM Director Kathleen Clarke to the Medford Mail Tribune on August 27, 2002.
>
> "Logging in adjacent watersheds reduces the amount of suitable habitat on a landscape basis, increasing the importance of the LSR to support owl productivity. The cumulative impact of the adjacent sales was magnified by the wildfire."
> -Timbered Rock DEIS 3-182.

Greetings,

This letter provides substantive comments from Klamath-Siskiyou Wildlands Center (KS Wild) on behalf of the American Lands Alliance, Cascadia Wildlands Project, the Oregon Chapter of the Sierra Club, the Oregon Natural Resources Council (ONRC), the Siskiyou Project and Umpqua Watersheds regarding the

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Timbered Rock Fire Salvage DEIS. Contact information for each of these commenting organizations may be found at the end of this document.

We hereby incorporate by reference all comments received by the BLM pursuant to the DEIS commenting period; including, but not limited to comments by the Environmental Protection Agency (EPA), the Northwest Environmental Defense Center (NEDC) the Oregon Natural Resources Council (ONRC) and the Siskiyou Project. We also explicitly incorporate by reference all comments submitted by individuals. In particular we bring your attention to the comments of the Siskiyou Project regarding *fisheries*, and the comments of Susan Delles regarding *soils issues*. We also submit and incorporate **attachment #1**, the 10/13/03 comments of Monica Bond M.S. of the Center For Biological Diversity regarding the Timberd Rock DEIS.

The focus of our comments is that considerable scientific uncertainty and controversy exists regarding environmental impacts of post-fire salvage logging and that the Elk Creek LSR (LSR 224), CHU OR-34 and the Elk Creek Teir-1 Key Watershed is an extremely inappropriate place for the BLM to plan commercial timber extraction for the purpose of "economic recovery." The BLM is treating large portions of the LSR as if it were the Matrix land allocation in which "economic recovery" and timber volume would be emphasized by the Northwest Forest Plan and Medford RMP. Other portions of the project area are proposed for research salvage (including commercial regeneration logging within riparian reserves and very near to occupied NSO sites) and are proposed to be managed as if they were Adaptive Management Areas (AMAs). The BLM's approach of logging the "reserve" for volume, economic recovery and a science project, can be contrasted with the approach of the US Forest Service which has determined that the Timbered Rock burn was a "resource benefit" to the LSR and is subsequently not proposing salvage logging within lands managed by the Forest Service. In other words, the USFS is continuing to manage the LSR as a reserve, while the BLM sees only an opportunity to further its large-diameter logging agenda.

Bias.

Prior participation in the Medford BLM's NEPA process leads the commenting organizations to believe that the public scoping and commenting process in your District will have absolutely no influence the BLM's *actions* in the watershed. As seen in past Medford BLM's timber proposals, we expect that the timber sale planners will ignore scientific and social controversy and proceed with a pre-ordained decision to emphasize timber volume extraction over other forest and watershed values. The Medford BLM's cozy relationship with logging advocates presents a stark contrast to the BLM's practice of ignoring substantive public comments that urge conservation of forest and watershed values. The Medford BLM colluded with Boise (Cascade) on the content of Watershed Analysis, on the fire suppression timing and tactics and on the content and focus of this planning document. The BLM's subservience to the timber industry is indisputable.

The commenting organizations provide the agency with these substantive comments with the full realization that our comments will influence the BLM's decision-making process in the slightest. The BLM's determination to fell, yard and haul large diameter snags from the Late Successional "Reserve" to the Boise mill in White City is pre-ordained and inevitable.

KS Wild would like to remind the BLM, that after commenting on the Timbered Rock Rehabilitation/Stabilization Project EA, we elected *not* to appeal the decision to implement the project. Should the BLM proceed with plans to extract wood fiber from the Elk Creek LSR and Tier-1 watershed *for economic rather than ecological purposes*, appeals and litigation will result.

Mary Smelcer (Acting District Manager when the DEIS was written) recently provided a written recommendation to the Ashland City Council detailing her philosophy regarding considering and incorporating public comments that she does not agree with. She wrote "People like George Sexton will go to any means, with rhetoric, emotion, and slander to sway your views. He says he represents "the citizens of Ashland" - he has no clue - he just moved here with his paid environmental obstructionist job to work on issues like this for a living." KS Wild does not believe that the Medford BLM is capable of making an unbiased, rational assessment of public input, or of the environmental impacts of this proposed project. The institutional culture of the Medford BLM is such that only logging interests will be reflected in your decision to highgrade large diameter trees from the "reserve."

Purpose and Need.

We appreciate the BLM's stated intent to make restoration an objective of the proposed action. The purpose and need should be limited to ecological restoration. The stated purpose and need of "economic recovery" is not appropriate for this watershed. As the BLM is aware, 27,155 acres of the Elk Creek watershed are managed exclusively for the economic benefit of industrial timber corporations. Furthermore, thousands of acres of BLM matrix lands in the Butte Falls Resource Area are managed primarily for the economic benefit of the timber industry. It is not appropriate for the BLM to now manage this LSR and Tier-1 Key Watershed for "economic recovery" rather than ecological recovery.

The BLM identifies nine objectives (DEIS 1.3.1) pursuant to the alleged purpose and need for the project. While several of the objectives purport to involve conservation goals (objectives 1-4) examination of the DEIS reveals that objective 7 is the actual driver for Alternative G. Even the stated goal of objective 7 is not fully reflected in the preferred alternative.

BLM stated objective 7:
"Recover some economic value of fire-killed trees while meeting LSR and watershed objectives (NFP and LSRA) (MMBF)."

This statement would seem to indicate that the BLM acknowledges the habitat objectives of the LRSA vis-à-vis producing volume from the alleged "reserve." Yet on page 2-38 we learn that the BLM "would not have a reasonable range of alternatives to choose from if guidelines from the South Cascades LSR Assessment were used as the maximum amount of salvage." Clearly the massive logging proposed under Alternative G is not consistent with many aspects of the LSRA, including (but not limited to) the finding that there is no ecological rational for salvage logging and the maximum salvage guidelines.

KS Wild finds it interesting that in the numerous proposals from the Medford BLM to liquidate existing critical habitat and old-growth in the matrix, the BLM has never contended that it needs to include an alternative to avoid the take of listed species in order to provide the decision maker with a reasonable range of alternatives. For instance, in the Kelsey Whisky old-growth roadless CHU logging project, the BLM refuses to consider an alternative that would evaluate the roadless and wilderness characteristics of the lands it wishes to log. Kelsey Whisky, and dozens of other old-growth logging proposals on the District, treat the matrix land allocation as a sacrifice zone in which logging must take place regardless of biological or hydrological degradation or public opinion. Yet the BLM claims that it cannot follow the NFP, LSRA and WA recommendations regarding protecting the Elk Creek watershed because it would not provide the decision maker with a reasonable range of alternatives. The BLM's definition of "reasonable" is without basis.

Page 2-39 of the DEIS informs the reader that the so-called "Beschta Alternative" does not actually reflect the findings of the 1995 study upon which the (throw away) alternative is allegedly based. The BLM states "the recommendation to leave all trees greater than 20" DBH was not adopted. Objectives of this EIS are economic recovery as well as LSR restoration." Hence the supposed "Bestcha Alternative" is not actually based on the findings contained in the study. It is merely used by the BLM as a way of padding the DEIS. While considering a Beschta alternative that reflects the actual Bestcha publication might help achieve stated objectives 1-4 of the purpose and need, the BLM refuses to even fully consider such an alternative (let alone implement it) due to its overriding bias toward producing large-diameter timber volume from the former "reserve."

As stated on page 3-104 of the DEIS, "approximately 6,000 acres of industrial forest land is planned to be salvaged." This 6,000 acres of salvage logging, when combined with the 1,800 acres of plantations within the planning area (3-104) indicate that this key watershed has already "done its part" in providing wood fiber and "economic recovery." In other words, the ongoing industrial lands logging, combined with the large-scale historical federal logging, have already achieved the volume goal stated in objective 7 of the BLM's purpose and need.

The purpose and need also details an alleged "need" to log the LSR for research purposes. Objective 8 states:

> Where possible, conduct scientific investigations that could be implemented within the LSR to respond to controversial issues and scientific uncertainties related to salvage of fire-killed trees or fire effects on critical resources.
> DEIS v.

This research will involve regeneration harvest within riparian reserves, and logging within 1/4 mile of occupied owl sites within the LSR (and CHU) in clear violation of both the NFP and the RMP. No mention is made of the purpose of Adaptive Management Areas under the Northwest Forest Plan. Instead, the LSR is simply administratively changed into a AMA at the whim of the BLM. While no mention of the purpose of AMA is present in the DEIS, the BLM did include a curious statement of why matrix lands could not be used for this science project. Page 1-12 of the DEIS indicates that if the research were conducted on matrix lands it would not be "long term" because the BLM believes the agency will be unable to restrain itself from logging the research sites if they were located on matrix lands. In other words, the BLM proposes to regenerate large-diameter snags within LSR, CHU and within 1/4 mile of occupied owl nests because it is not willing to maintain research plots in matrix lands allocated for logging purposes.

Northwest Forest Plan Standards and Guidelines C-4 state that every effort should be made to locate science projects with conforming land use. We see no evidence that any effort was made to locate the proposed regeneration logging within a conforming land use.

Under the free market system, nothing prevents the OSU logging-scientists from offering industrial land-owners compensation for allowing them to conduct their logging research project on private lands outside of an allegedly protected federal Late Successional "Reserve."

Please note that attainment of many of the alleged objectives of the DEIS are directly inhibited by the proposed salvage and green tree logging.

Timing of Surveys.

In addition to the large-scale proposed salvage logging, the BLM is proposing to log 811 acres of living "green tree" stands over 80 years of age and up to 24" DBH within the LSR and CHU. Additionally the BLM is proposing to log up to 1,300 acres to create so-called Fuel Management Zones (FMZ). The DEIS does not disclose if proposed new landings or logging roads will fell green trees. The PDFs indicate that green trees will be felled (and then yarded and sold) to facilitate the salvage highgrading of large diameter snags. As of publication of the DEIS these green tree stands have not been surveyed for sensitive and survey and manage species or for the federally listed Northern Spotted Owl. The DEIS contains no (as in zero) site specific information regarding sensitive, survey and manage or listed species. The BLM has responded to Freedom of Information Act (FOIA) requests from the public for survey information by indicating that surveys have not been completed.

The Medford BLM continues to release Environmental "Assessments" and Environmental Impact Statements in which the actual current condition of the planning area, and the likely impact on forest resources, cannot be determined by the public, the ID Team or the decision maker. The public cannot provide site-specific comments, and the ID Team cannot make an informed identification of a "preferred alternative" when we do not have access to survey information.

The DEIS fails to disclose potential impacts of the project on a number of species of interest to both the BLM and the general public. The DEIS contains an inadequate, conclusory and vague analysis of many survey and manage, special status vertebrates, special status invertebrates, and neotropical migratory birds that are known or suspected in the planning area.

The DEIS fails to disclose the location, frequency and distribution of survey and manage species *to the public* in a timely manner that will allow for comments that are reflective of the actual lay-out of timber sale units and new logging roads. The Medford BLM has a long-standing practice of refusing to reveal the location or composition of survey and manage buffers while claiming in the Decision document that survey and manage sites have been buffered. This does not allow for meaningful public comment or agency "analysis."

NEPA requires that an agency provide a detailed analysis of the environmental impacts of the proposed action. 42 USCA §4332(C)(i). The BLM must assure that the interdisciplinary team, and the public, has access to the best available data.

"NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken." 40 CFR §1500.1(b)." " ... NEPA requires consideration of the potential impact of an action before the action takes place." Tenakee Springs v. Clough, 915 F.2d 1308, 1313.

NEPA requires that agency decisions be based on the highest quality data and analysis to provide for full public participation and informed decision making. 40 CFR §1500.1. "The information [used in the NEPA process] must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." 40 CFR §1500.1(b)

Page 1-12 contends that surveys prior to the green tree logging would be conducted "prior to implementation." PDF 18 indicates that surveys for RTVs and mollusks would be finished prior to "activity." While PDF 30 simply indicates that rare vascular plants, lichens, brophites and fungi "will be buffered." Page 3-187 indicates that Goshawk surveys have not been done. Page 3-188 promises that Great Grey Owl (GGO) "surveys would be completed" with the caveat "unless the project is scheduled to occur outside of season restrictions." Page 3-188 also promises RTV surveys.

To put it bluntly, the BLM assurances of surveys are meaningless and do not constitute an analysis of the affected environment and do not allow for a discussion of the potential environmental consequences. The BLM "analysis" of these species

simply consists of promising to survey for them sometime in the future. Their location, population dynamics, and use of existing habitat cannot be known without conducting surveys before the agency lays out its timber sale. Currently, the presence (or absence) of these species cannot be reflected in public comment or project development. No actual information, data or analysis is presented in the DEIS. The statement that GGO would be completed unless the agency conducts the project outside of the seasonal restriction tells the reader nothing. Will surveys be conducted? We don't know. How many GGOs are in the logging area? We don't know. What will the impact of the logging be on GGOs? We don't know.

Furthermore the agency promise to conduct surveys (and perhaps establish buffers) in the future is highly suspect. We are aware of literally dozens of Medford BLM old-growth timber sales in which surveys have been completed and then the BLM timber planners have relied upon internal agency memos and species reviews to simply log the sites anyway. We are not even convinced the BLM will actual conduct the surveys promised in the Elk Creek WA, the DEIS, RMP and NFP. Your history is one of avoiding surveys at every opportunity. In FY 1998 the agency hastily released numerous old-growth timber sales in an attempt to use the "Devlin Memo" to relieve you of your duty to survey for RTVs (you were sued and lost.) In 2001 the agency authored a EIS to drop 74 species off the survey and manage program. Currently the agency is contemplating an EIS to eliminate the survey and mange program all together. A site-specific example of the BLM promise to do surveys being a lie can be found in the Cotton Snake timber sale in the Glendale District. The NFP promised that the agency would survey for RTVs. The Medford RMP promised that the agency would survey. The WA contended that the agency would survey. But when the timber sale was released not only did the agency not survey, you refused to accept citizen surveys. Your record on survey and mange is one of deceit and lies intended to facilitate the logging of large diameter trees.

Salvage Logging Harms Birds.

On a landscape level, wildfires create patches of highly attractive habitat for a distinct array of wildlife species (Hutto 1995). Increased abundance of certain insects in burned stands attracts insectivorious birds. As a consequence of changes in food composition and breeding habitat, burned forests support different bird communities, with many species dependent on stand-replacement fires (McIver and Starr 2000). To maintain healthy metapopulations of these important species over the landscape, burned patches of forest should be managed with great care (Id.).

Changes in species composition have been detected in burned forests that were logged (salvaged), reflecting effects of large woody debris removal on foraging and nesting habitat of cavity-nesting species. For example black-backed woodpecker and three-toed woodpecker have consistently shown negative responses to post-fire logging, with significantly more nests found in unlogged sites (Caton 1996, Heji and McFadazen 1998, Hitchcox 1996, Saab and Dudley 1998). Both woodpeckers are Special Status Species in the Medford District. (RMP 141).

"[M]any cavity-nesting birds are attracted to post-fire environments and clearly are affected by the removal of large structure through logging activities. If managers want to maintain healthy populations of these birds, prescriptions that preserve sufficient nesting and feeding habitat are necessary." (McIver and Starr 2000). Many birds identified as SSS by the RMP prefer burned forests that are left unlogged. (Id).

Post-fire logging will negatively affect Special Status Species that depend on coarse woody habitat and are especially attracted to burned forests. The potential cumulative impact of coarse woody habitat removal on Special Status Species in the project area is very significant given past habitat removal within the LSR and adjacent habitat destruction on industrial forest lands.

As stated on page 3-199 of the DEIS "Snag and coarse wood levels would be below the LSRA and DecAID recommendations."

The proposed green tree and salvage highgrade logging will harm the six USFWS (2002) Birds of Conservation Concern found within the planning area: peregrine falcon, flammulated owl, rufous hummingbird, Lewis's woodpecker, white-headed woodpecker, and olive-sided flycatcher.

Pine Habitat "Restoration" Old-Growth Logging.

Commercial logging of 811 acres of late-successional forest stands within a LSR, within CHU, within a Key Watershed is not actually "restoration." The NFP standards and guidelines for commercial thinning within LSRs clearly limit thinning to stands younger than 80 years of age. (NFP C-12)

The DEIS calls for 811 acres of old-growth logging within the planning area without justification or analysis. E-6 indicates that live trees up to 24" will not only be felled, but will also be yarded and hauled out of the LSR. Does the BLM contend that yarding old-growth trees that pre-date fire suppression is beneficial to the creation of late-successional forest conditions? Please analyze and disclose if 90 acres of tractor yarding and 812 acres of helicopter yarding will contribute to the attainment of late-successional forest characteristics.

Page 3-181 indicates that commercial thinning *greatly* reduced NSO foraging and roosting in recently thinned stands. (Meiman et al 2002). Please note that page 3-182 of the DEIS contends that "Logging in adjacent watersheds reduces the amount of suitable habitat on a landscape basis, increasing the importance of the LSR to support owl productivity. The cumulative impact of the adjacent sales was magnified by the wildfire."

Also note that map 2-2 (DEIS 2-13) indicates that all of the late-successional "pine release" logging is proposed outside of the fire perimeter. These factors magnify the importance of these late-successional stands for NSO foraging and roosting, especially in the short term.

Fuel Management Zones (FMZ)

The DEIS calls for 17 miles of FMZs impacting "up to 1,300 acres. (DEIS 3-181) "Ridgeline FMZs outside the burn area would make 400 to 600 foot wide strips unusable as owl habitat." Clearly this logging proposal is not beneficial to the creation of late-successional forest conditions within the LSR. The BLM claims, without analysis or citation, that FMZs would provide so-called "long term insurance value" reducing the risks of large stand-replacement fire. (DEIS 3-181)

The LSRA repeated states that low intensity fires need to be reintroduced into the watershed. Does the BLM contend that the FMZs would be effective at stopping high intensity fires? If so, upon what is this conclusion based? Will not the FMZ be primarily effective against low intensity fires and encourage a cycle of fuel build up followed by high intensity fire and subsequent "economic recovery" of the "reserve."

By allowing in more sunlight, fuel breaks often encourage the growth of brush and understory trees. If fuel breaks, or "fuel zones" are not maintained to treat such growth, such breaks or zones could actually encourage a ground fire to climb into the crowns.

Page 3-98 of the DEIS acknowledges that "the early seral stage areas that burned have very low survival rates, compared t stands in late seral condition." Yet the FMZ strategy appear to be to maintain 1,300 acres (much within the late-successsional "reserve") in a permanent early seral stage. The impacts of maintaining 1,300 acres in permanent early seral condition on late-successional associated species are not fully disclosed.

The proposal to leave as little as 6 snags per-acre is a de facto claercut and violates both the NFP and RMP standards and guidelines for LSR, CHU and Key Watershed management.

The environmental impacts of associated fire suppression and (attempted) exclusion from a policy of FMZ creation are not fully disclosed or analyzed in the DEIS. The proposed action contends that, The FMZ strategy is designed to assist in future wildfire suppression activities, to provide for firefighter safety, and to provide anchor points for control lines." (DEIS 2-20) The fuelbreaks are clearly and specifically designed for fire suppression actions--this is where firefighting is intended to occur. Accordingly, the environmental impacts of firefighting in fuelbreaks should have been specifically analyzed and explicitly disclosed.

The impacts and costs of FMZ yarding and post-project FMZ maintenance are not fully disclosed or analyzed in the DEIS.

The age and stand composition of the forest lands proposed for FMZ treatment is difficult to discern from the DEIS.

C-14 of the Northwest Forest Plan clearly states "Salvage in disturbed sites of less than 10 acres is not appropriate because small forest opening are important component of old-growth forests." How many acres of burned stands less than 10 acres are proposed for logging under the FMZ prescription?

The analysis for the Herger-Feinstein Quincy Library Group Forest Recovery Act disclosed current research findings from Dr. Mark Finney that disputes the efficacy of linear fuelbreaks, and instead, favors area-wide treatments primarily with prescribed underburning. Specifically, during the 90th percentile of fire weather, Finney's analysis showed that spotting easily breached the linear fuelbreaks are both unsafe and ineffective for their primary intended function: fire containment during severe fire weather conditions. Area-wide treatments, on the other hand, were demonstrably superior in that they both provided multiple options for fire containment lines, and also performed actual fuel reduction which reduced fire behavior and effects. They also resembled more the natural mosaic pattern created by wildland fires than the entirely artificial structure of linear fuelbreaks.

The South Cascades LSRA emphasizes repeatedly that low intensity fires need to be reintroduced into the forest, and recommends prescribed burning. Much of the published literature on fuel breaks indicates that they are not effective in controlling large-scale or high-intensity fire. Instead fuel break might help stop small scale and low or moderate intensity fires *that are ecologically beneficial to the watershed.*

Salvage.

C-13 of the NFP sates "While priority should be given to salvage in areas where it will have a positive effect on late-successional forest habitat, salvage operations should not diminish habitat suitability now or in the future."

The area salvage logging, science project logging, and roadside highgrade logging proposals all clearly diminish habitat suitability both now and in the future

(1) SCIENCE PROJECT LOGGING

The BLM acknowledges that "logging in adjacent watersheds reduces the amount of suitable habitat on a landscape basis, increasing the importance of the LSR to support owl productivity." And that "The cumulative impact of the adjacent sales was magnified by the wildfire." (DEIS 3-182) Given this, why is the BLM proposing a logging research project that will fell, yard and haul large diameter snags adjacent to occupied NSO sites?

Page 2-58 indicates that 49 acres of such logging will be conducted within 1/4 mile of occupied NSO sites. The DEIS further indicates that you intend to log another 281 acres of large diameter snags within 1/2 mile of 8 occupied NSO sites. Does the BLM contend that such logging represents an effort "to locate non-conforming activities in land allocations where they will have the least effect upon the objectives of the standards and guidelines?" (DEIS 1-11)

The BLM assumption of "no occupancy" (without actually conducting surveys) adds an additional 188 acres of logging within 1/4 mile of 8 sites and 462 acres of logging within 1/2 mile of 9 sites. Clearly both the science project logging and the area salvage logging violate C-13 of the Northwest Forest Plan and the critical habitat protections of the Endangered Species Act. These numbers are based on table 2-2 and S-3. The numbers provided on page 3-187 of the DEIS are different. Hence it is difficult to rely on BLM numbers. One thing is certain however, the BLM is proposing to log (and yard) lots of large diameter snags near Spotted Owl sites in an LSR without having yet conducted surveys.

Does the BLM contend that "heavy salvage" near NSO sites, within an LSR, within designated NSO critical habitat does not adversely modify critical habitat in violation of the Endangered Species Act?

Does the BLM contend that clearcut logging (leaving 6 snags per acre) within a riparian reserve contributes to the attainment of the objectives of the Aquatic Conservation Strategy for management of Key Watersheds?

Page 3-109 indicates that the BLM is aware that the 120 acres of clearcutting proposed in the science project will in fact not meet LSR, CHU, NFP and RMP requirements for woody debris, soil replenishment and nutrient cycling. Clearly the supposed concern for meeting "LSR and watershed objectives" stated in the alleged purpose and need will not be met by implementing these clearcuts. 120 acres of clearcutting within the LSR (some within riparian reserves) will diminish habitat sustainability now and in the future.

(2) AREA SALVAGE

The area salvage is clearly the heart of the greed driven logging for "economic recovery." The DEIS calls for clearcut logging (leaving 8-12 snags per acre) 1,051 acres via area salvage. There is no contention that cable yarding and tractor yarding, new logging road construction, or clearcut forestry will contribute to the late-successional characteristics of the LSR. Instead the DEIS recognizes that Alternative G is inconsistent with the NFP, RMP and LSRA (DEIS 2-63) will result in increased erosion (DEIS 2-69) and will increase sediment delivery to streams (2-70).

Page 3-187 acknowledges that "the Preferred Alternative would be a May Affect, Likely to Adversely Affect" negative impact on NSO populations within the LSR. Habitat suitabillity within the planning area is diminished both now and in the future through felling, yarding and road building.

It is common practice for the Medford BLM to contend that it has a "green light" to kill (take) owls or destroy their remove their critical habitat as long as they have consulted with USFWS. See the Pickett-Snake, Kelsey Whisky, Bear Pen, King Wolf, Mr. Wilson, and Granite Horse old-growth matrix CHU removal Protest Responses. The USFWS does not agree with the BLM's assessment of the

consultation process for killing owls. In Defendant's Answer in Civil Case N. 03-888-PA the Department of Justice contends that "it is the action agency's responsibility to ensure that a project does not adversely modify critical habitat."

Is the BLM contending that 1,051 acres of clearcut logging, and hundreds of acres of ground based yarding (and 911 acres of green-tree late-successional logging) within the LSR and CHU is not adverse modification of critical habitat? If so, will the BLM please describe what a logging proposal would look like that it believes would adversely modify critical habitat? Or does the BLM contend that it is impossible for the logging action agency to ever actually adversely modify critical habitat?

(3) ROADSIDE SALVAGE

The DEIS does not provide the reader (or the decision maker) with site-specific information regarding the number, volume or location of the proposed 955 acres of roadside highgrade logging within the LSR.

It appears that the BLM intends to fell, yard and haul large diameter snags from all 955 acres proposed for this form of highgrade logging. Is the BLM familiar with S&G C-15 of the NFP which states "In other areas, such as along roads, leaving material on site should be considered." Was a fell and leave option considered? If so, upon what basis was it rejected for the entire 955 acres of highgrade logging?

Upon what basis does the BLM contend that felling and yarding trees up to 200' *below* a road contributes to human health and safety?

Page 2-6 states that "only those trees that pose a threat or a potential threat would be harvested." How does the BLM differentiate between a "threat" and a "potential threat?" Theoretically, is there any tree (burned or not) that does not present a "potential threat?"

What type of yarding is proposed for the roadside highgrading? If it is bull-line yarding, does not ground based yarding above road systems concentrate compaction and waterflow into the road prism?

How much timber volume is anticipated to be sold from roadside highgrading?

Does the BLM have estimated DBH for the trees to be felled, yarded and sold from the LSR and CHU as part of the roadside highgrade yarding?

Page 2-6 of the DEIS contends that "Stand replacement areas (generally high and moderate severity) would have higher concentrations of hazard trees. Areas of low and very low severity would have fewer hazard trees and would be isolated trees scattered along the roads." Yet table 2.3-2 indicates that the BLM's preferred alternative calls for roadside highgrade logging on 881 acres of low-very low severity areas while highgrading 74 acres of high/moderate severity lands.

In delineating some of the potential environmental consequences of the project, the BLM apparently contends that impacts from the 955 acres of roadside highgrading would "likely be to less than 100 acres of BLM-administed land over the entire fire area." (DEIS 3-103) This is the only reference we found to 100 acres of impact. Every other discussion of roadside highgrading uses the 955 acre figure. Where did the 100 acre figure come from? Page 3-103 also indicates that "areas that received high or moderate burn severity would have the majority of the hazard tree removal." Again, table 2.3-3 seems to indicate that ten times the acreage of low-very low severity areas will be subjected to highgrading than will high/moderate severity areas.

Page 3-219 of the DEIS indicates that the BLM intends to highgrade and yard large diameter snags from "pockets of dead trees" that are larger than three acres. The NFP standards and guidelines for LSR management indicate that the BLM should consider felling and leaving "hazard" trees on site and that commercial logging in stands smaller than 10 acres is inappropriate.

Does the BLM contend that yarding felled snags contributes to the desired future condition of riparian reserves, late-successional reserves, NSO critical habitat or Key watershed pathway indicators?

Page 3-220 of the DEIS indicates that the BLM hopes to reduce snags within 71% of the fire area (including private land snag reduction). The negative impacts to deferred watersheds, ACS objectives, sensitive and survey and manage species, and late-successional stand composition from highgrading 71% of the planning area is not fully disclosed by the BLM.

(4) GREEN TREE LOGGING IN SALVAGE UNITS

Page 2-4 of the DEIS acknowledges "an occasional green tree may be cut to facilitate yarding systems. These trees may be needed for guy lines for cable yarding systems. Green trees may also be cut to clear for yarding corridors or landings. These trees would be harvested."

Upon what basis did the Medford BLM timber planners determine that your *desire* to facilitate the yarding of large diameter snags in CHU OR-34 by logging green trees within the LSR rises to the level of a "*need*" ?

Is the Medford BLM familiar with the NFP standard and guideline at C-14 that states "Consequently, **all** standing live trees should be retained, including those injured (e.g., scorched) but likely to survive." Does the Medford BLM use a different definition of the term "all" than is found in common usage? We were not able to locate a definition of "all" in the DEIS glossary, but we assume it means every tree. Is this assumption incorrect? Does "all" mean something less than "every tree" to the BLM?

(5) YARDING AND ROAD CONTSTRUCTION PURSUANT TO SALVAGE LOGGING

The impacts of yarding and roading systems on soil compaction, peak flows, mass wasting and sensitive and survey and manage species are consistently downplayed or ignored in the DEIS.

The DEIS also provides conflicting numbers regarding the types of proposed yarding systems. Page 2-37 of the DEIS indicates that the BLM intends to implement 440 acres of cable yarding, 47 acres of tractor yarding, 552 acres of helicopter yarding and 12 acres of tractor/bull line yarding pursuant to "area wide salvage logging. Page 2-36 indicates that the science project logging may include 194 acres of cable yarding, 23 acres of tractor yarding, and 111 acres of helicopter yarding. No figures are provided regarding roadside highgrade yarding, FMZ yarding, yarding from stand treatment greater than 70% canopy, pine release yarding or yarding pursuant to the construction of new logging roads. Indeed the impacts from the unknown yarding systems are simply ignored by the BLM.

Table S-3 and 2-1 provide different yarding numbers. In these portions of the DEIS the BLM claims that 1,888 acres will be tractor yarded, 1,051 acres will be bull-line yarded, 338 acres will be skyline yarded and 984 acres will be helicopter yarded. At first KS Wild thought it possible that these numbers reflected the addition of the "mystery yarding" from the unaccounted for yarding systems to the disclosed yarding figures. Relying on this information, we posted these figures on our web site. BLM Co-Team lead John Bergin called and emailed KS Wild to inform us that by posting the figures provided in BLM's DEIS we were misleading the public. If there is any place in the DEIS in which the public can find the actual total yarding numbers, and perhaps an analysis of their environmental impacts on the LSR, we would appreciate being informed of it.

The DEIS also fails to provide any analysis of the cumulative impacts resulting from the 3,255 acres of cable yarding, 2,060 acres of tractor yarding and 7 miles of new roading on private industrial forest lands in the watershed. (DEIS 3-6). Similarly the contribution of 5,725 acres of salvage logging on private lands toward the objective of economic recovery is never discussed.

(6) SNAGS ARE GOOD

Role of snags in sustaining ecosystems

A recent panel of 13 nationally respected scientists, appointed to study how public forests should be managed in the context of competing and shifting social expectations, concluded that "maintenance of soil quality and nutrient stocks that hold the key to current and future forest productivity may necessitate adjusting timber harvest rates and leaving more large woody debris" (Aber et al. 2000). Snags are vital to myriad wildlife dependent on tree cavities, logs, woody structure, etc. Removing them deprives streams woody debris that provides holding and rearing habitat for anadromous fish, for which your agencies are mandated to conserve (Maser et al. 1988). Fire killed snags may also become important refugia for fungi across fire cycles and have other legacy effects (Franklin et al. 2000), and are critical for the maintenance of soil organic matter and long-term site productivity (Harmon et al. 1986). The loss of snags, the soil disturbance from post-fire logging, and the increased long-term erosion are in direct conflict with

managing for multiple future values, including productive forests and streams, and instead consistent with non-sustainable boom-bust extraction.

The DEIS assumes snags will be logged within 71% of the fire perimeter. (DEIS 3-219) The BLM's presumption that dead trees occur in excess numbers is unsupported, illogical, and ignores the ecological role of woody debris. Please modify the DEIS to address the ecological importance of woody debris and the undesirable ecological effects of removing it.

Destruction and Adverse Modification of Existing Critical Habitat.

A large number of activities known to destroy or adversely modify NSO critical habitat are proposed in the DEIS. The entire planning area is within the Elk Creek Late Successional "Reserve" which overlaps with CHU OR-34.

While the BLM acknowledges the findings of Meiman, et al. 2002 indicating that NSO foraging and roosting is greatly reduced in recently thinned stands (DEIS 3-181) the BLM proposes to commercially log (and yard) 479 acres of mid seral stands, commercially log (and yard) 811 acres of late seral stands, and log an unknown amount of "stands greater than 70% canopy closure" in the LSR CHU outside of the fire perimeter. These logging prescriptions call for logging trees up to 24" DBH (pine release) and lowering canopy levels to 50% (condition 3 commercial thinning.)

As discussed in the "salvage" section of these comments, the BLM also intends to clearcut salvage log (and yard) very near to occupied and history owl sites.

Table 2-3 admits that there is "unknown level of use of burned stands by NSOs." The table also acknowledges that there is an "unknown level of risk of salvaging dead stands within 1/2 mile of historic activity centers." Yet the analysis within chapter 3 of the DEIS fails to analyze the impacts of salvage (and green tree) logging on CHU OR-34.

Deferred Watersheds.

It appears that a significant amount of felling, yarding and hauling is proposed in "deferred watersheds." The DEIS at 3-8 states that "all or parts of Alco, Flat, Miller, Jones and Yellow Rock creeks were designated as deferred watersheds in the RMP because of high cumulative effects." Clearly the private lands industrial logging and the proposed large diameter logging on federal lands (not to mention the fire) have resulted in additional significant cumulative impacts to these watersheds that make further destructive logging practices inappropriate.

KS Wild is not aware of any reevaluation of the deferred watersheds. We are also not aware of any cumulative effects analysis that indicates that the industrial logging, fire suppression and burn impacts in these watersheds have reduced the negative cumulative impacts in these watersheds.

Page 1-4 of the DEIS indicates that the RMP deferred timber harvest for ten years (pending reevaluation) on 7,611 acres in the Elk Creek Watershed "due to high cumulative impacts. This deferral was based on equivalent clearcut areas, compacted areas, openings in the transient snow zone, and road density." We believe that the ongoing private industrial lands logging combined with the impacts of fire suppression and burn impacts have contributed to these "high cumulative impacts." Proposed green tree and salvage logging within these deferred watersheds will add even further to the high cumulative impacts.

Does the DEIS specifically address the proposed impacts to these deferred watersheds? If so where can we find that analysis?

Soils and hydrology.

Soil integrity is a key issue for this action. In addition to identifying soil erosion as an "issue/concern" the agency must address issues regarding soil chemistry, productivity, hydrology and biological integrity. The DEIS is repleat with information indicating that the impacts to soils from the proposed logging activities will inhibit attainment of the Aquatic Conservation Strategy Objectives of the NFP.

The DEIS provides an unsubstantiated "maximum estimate" of soil disturbance for tractor and bull-line yarding of 12 percent. (DEIS 3-10) The additional impact of landings, private land logging activities and fire suppression impacts is discounted or ignored. Page 3-38 of the DEIS claims (without analysis or citation) that "tractor yarding would not compact any soils as all tractor lines would be ripped." No compaction at all from tractor yarding? The BLM makes a similar claim regarding the impacts of 7.7 miles of tractor lines constructed on BLM lands during fire suppression activities. (DEIS 3-22) Please provide support for these surprising assertions that would seem to contradict the "maximum estimate" presented on 3-10.

Mass wasting is a "major contributor to background sediment loading" (DEIS 3-11) and is likely to be exacerbated by BLM logging, yarding, landing and roading activities. "Surface erosion and mass wasting from the roads have been identified as major sources of human caused sediment into streams." (DEIS 3-14) In the very high burn severity stands that are targeted for the most aggressive "area logging" and yarding, the BLM acknowledges that adverse soil and hydrological impacts have already been "severe." Page 3-33 of the DEIS indicates that "[b]ull-line and cable corridors would act as conduits for water and sediment movement."

Page 2-23 indicates that the BLM believes that "fire exclusion" has altered the fuel and duff/litter layers with subsequent impacts to fire effects on soils. Yet no analysis is provided regarding the impacts of the proposed continued policy of "fire exclusion" on soils. While contending that the BLM's management policy of "fire exclusion" has altered fuel loadings and duff/litter composition the BLM also (inexplicitly) contends that the large increase in debris torrents and peak flows are "not associated with any management activities." (DEIS 3-27) Is the BLM

contending that its continuing policy of fire suppression is not a "management activity?" Is the BLM contending that logging roads, equivalent clearcut acreage, and yarding impacts have had no impacts upon debris torrents and peak flows?

Page 3-28 of the DEIS indicates that "[r]oad building in steep mountainous terrain has been long recognized as the single greatest cause of soil mass movement. (Swanston 1970). The increased rates of failure were assessed at 25 to 400 times the rate of failure for undisturbed terrain (Siddle, et al. 1985)." Yet neither of these reports is actually listed in the bibliography of the DEIS. We assume that the reports may indicate that the proposed new "temporary" road construction activities (proposed on burned soils) will have similar impacts. Even if the impacts are less than expected, the Aquatic Conservation Strategy objectives of the NFP will clearly be inhibited by the proposed road construction and yarding activities.

The DEIS acknowledges that "[p]iled slash burns hotter than broadcast burning, increasing consumption of organic matter and nutrient losses. (DEIS 3-41) Further the proposed action alternatives "would negatively impact recovery of soil productivity on moderate and high burn severity sites." (Id) "Alternative G would impact productivity by removing fire-killed trees on 3,777 acres. This would affect 4.4 percent of the Elk Creek Watershed." (DEIS 3-44) We once again remind the BLM that the C-13 of NFP states that "salvage operations should not diminish habitat suitability now or in the future." Furthermore the ACS requires that the BLM cease its practice inhibiting the attainment of hydrological health. This is particularly important in a Key Watershed within an LSR.

Aquatic Conservation Strategy Objectives.

The NFP requires the BLM to ask: "Are desired habitat conditions for at-risk fish stock maintained where adequate and restored where inadequate?" and "Are habitat conditions for late-successional forest associated species maintained where adequate, and restored where inadequate?" (NWFP ROD, E-8) FEMAT reinforces the mandate to restore degraded watersheds and requires that where watersheds are only "maintained," it is because they are in a functioning state. "An ecosystem approach is necessary to halt habitat degradation, maintain habitat, and ecosystems that are currently in good condition, and to aid the recovery of habitat…" (FEMAT V-2) The spirit and intent of the ACS is clear that it is aimed at restoring degraded habitats and maintaining the remaining good habitat conditions. The EIS and the BA clearly call for logging activities that will further harm, and not restore, pathway indicators that are not properly functioning.

The spirit and intent of FEMAT can be contrasted with the history and current logging proposals of the BLM. For decades the BLM conducted logging and road building activities that it knew would degrade watersheds and fish habitat. The BLM continued logging in riparian areas until forced to stop by the NFP. After adoption of the NFP the Medford BLM continued to plan timber harvests that it knew would result in short-term localized harm to aquatic values until stopped by the PCFFA decisions in Federal District Court and the 9th Circuit Court of Appeals. Now the BLM is attempting to amend the ACS (through a plan amendment EIS) to

allow the agency to continue degrading watersheds. It is a sad legacy of abuse, mismanagement and servitude to the timber industry.

Up to 1,500 acres of the LSR are contemplated for "regeneration" on moderate or high severity burned acres. Regeneration harvest, or clearcutting, is known to inhibit many of the objectives of the Aquatic Conservation Strategy (ACS) including sediment loading, terrestrial connectivity and peak flows. Clearcutting, road building and landing construction within the Transient Snow Zone (TSZ) have especially pronounced impacts on peak flows.

BLM timber sales must "[m]aintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport" (NFP ROD p. B-11).

Logging and road building can trigger sediment and turbidity problems even when these activities take place outside of Riparian Reserves (USDC 1997). The distance that sediment can travel from the point of disturbance depends on the type of management activity and the condition of the reserves (Ketcheson & Megahan 1996). Concentrated sources of sediment, such as road cross-drains, can produce large volumes of sediment that have the potential to reach streams regardless of how far upslope they are (NMFS 1997). Sediment travels farther through Riparian Reserves that are degraded by logging and/or road building than undisturbed reserves because roads and ditches form pathways for sediment to travel downslope that do not exist in undisturbed reserves (Chamberlin et al. 1991).

It is not reasonable to assume that undisturbed Riparian Reserves would buffer streams from soil erosion and sediment delivery. The BLM has not fully analyzed the existing condition of reserves and private land hydrologic conditions and their location is never disclosed to the public in the EA. Most reserves and stream courses on private land are degraded from past disturbances.

The BLM cannot credibly conclude that the proposed logging, yarding and road buidling would meet Aquatic Conservation Strategy (ACS) objectives.

Logging, construction of new roads, skid trails and landings would displace and/or expose soil and potentially add non-point sediment pollution to Elk Creek. The EIS fails to disclose the current condition of riparian reserves in the project area and their ability to filter sediment. The soil mitigation and Best Management Practices/ Project Design Features BMPs/PDFs are not site-specific, and their effectiveness at reducing sedimentation is unknown.

The DEIS lacks complete analysis of how the project would maintain the existing watershed conditions or move them toward their natural range of variability (NFP ROD p. B-10). The natural range should be informed by watershed analysis (pp. B-20 and B-21), and it should account for historic habitat conditions.

The DEIS even acknowledges that riparian conditions are poor and admits there will be increased sedimentation. The BLM can't rely on PDF's to meet the ACS objectives.

In watersheds subjected to roading and clearcut logging, changes in the drainage network, soil compaction, less interception of precipitation by vegetation, and reduced evapotranspiration by trees can significantly increase soil moisture and water yield (Chamberlin et al. 1991, Hicks et al. 1991, Satterlund and Adams 1992). Accelerated drainage from highly roaded and logged watersheds may increase the volume and frequency of peak stream flows, and may also alter the volume of base flows (USDC 1997). Altered flows can degrade stream channel morphology and aquatic habitat.

Alternative G would directly increase open road density (in the short term), increase canopy openings and increase soil compaction. When combined with extensive logging and road building in the past, the planned activities likely will trigger increases in peak stream flows.

In portions of the planning area with a rain-dominated hydrologic regime, logging activities would increase soil moisture and enable more precipitation to become available as surface runoff (Keppler et al. 1990). Roads interact positively with clear-cutting to modify water flow paths and speed delivery of water to channels during storm events, producing much greater changes in peak discharges than either clear-cutting or roads alone (Jones and Grant 1996).

All of these impacts are downplayed by the agency through its reliance on scale and temporal tricks to mask negative impacts to the objectives of the ACS. As the BLM knows, this practice has been explicitly rejected by the Ninth Circuit Court of Appeals. Furthermore, the BLM relies on PDFs and riparian reserves to mitigate the damage to ACSOs. The PDFs and riparian reserves are not substitutes for maintaining or restoring the objectives of the ACS.

Aquatic Habitat.

Threatened and sensitive fish exist in the Elk Creek watershed. Aquatic conservation is a significant issue for this action. Direct, indirect and cumulative effects of proposed activities on hydrologic function, sediment regimes, stream temperatures, nutrient cycling, pH, and habitat connectivity were discounted and glossed over in the DEIS. The positive and negative impacts of fire suppression and post-fire rehabilitation were not fully disclosed. The quantifiable cumulative impacts of 5,725 acres of "economic recovery" on industrial forest lands in the watershed, including 3,255 acres of cable yarding, 2,060 acres of tractor yarding and 7 miles of new logging road construction were not disclosed.

Page 2-11 of the DEIS calls for logging within riparian reserves in both green tree and salvage ("research") units. Yarding will occur within riparian reserves. Slash piles will be burned within riparian reserves. Does the BLM contend that yarding trees through riparian reserves will help attain the objectives of the ACS?

Currently the BLM does not know, and has not disclosed, the stand composition and location of riparian reserves. (DEIS 3-45) Rather than disclose and analyze the functionality of existing riparian reserves, the BLM simply promises that "Riparian Reserve surveys will be completed on BLM-administered lands within the fire perimeter." (Id) This promise does not qualify as a description of the affected area or allow for informed decision making regarding potential environmental impacts. It also does not inform the reader about the location or stand composition of riparian reserves outside of the fire perimeter. Salvage and green tree logging and yarding proposals were developed before the agency had site specific riparian information available.

Please also note that citizen requests for accurate riparian reserve maps that would allow for site visits and the development of site specific comments are routinely rejected by the Medford BLM. For more information on BLM unwillingness to provide riparian reserve maps please refer to the many citizen requests for riparian reserve maps that were rejected by Glendale Field Manager Lynda Boody that may be found in the Cotton Snake administrative file.

The BLM is relying on road density information that it knows is inaccurate. Page 3-44 of the DEIS acknowledges that "new roads built for private access after the fire are not in GIS" and hence not included in road density calculations. Similarly, the number of jeep roads in the watershed is not known by the BLM. (DEIS 3-53)

The BLM does know that it is proposing 955 acres of roadside highgrade salvage with ground based yarding systems that "would create a mechanism for sediment delivery by directly connecting the disturbed are to roadside ditches, many of which are hydrologically connected." (DEIS 3-58) Does the BLM believe that this yarding will maintain or achieve the objectives of the ACS? How much of this yarding is proposed in "deferred watersheds" within the LSR?

The proposed area salvage logging, science research salvage logging and roadside salvage logging will contribute to the ongoing "chronic lack of large woody debris (LWD)" that is noted on page 3-49.

Already sediment from "management sources" (aka logging) dwarfs sediment productions from background sources. 12,400 tons of erosion per year compared to 3,300 tons per year. (DEIS 3-47) The DEIS states that "the greatest concern with respect to sedimentation would be high and moderate burn severity areas located in riparian reserves due to connectivity to stream channels." (DEIS 3-52) Yet the BLM proposes logging within high and moderate burn severity riparian reserves and states that "[t]he likelihood of sediment being delivered to streams is high because riparian reserves would not have litter and duff intact…" (DEIS 3-58) Further the BLM proposed an undisclosed amount of area and roadside salvage logging (and yarding) adjacent to high and moderately burned riparian reserves while acknowledging that "[r]iparain reserves that burned at moderate to high severity, especially along perennial and long-term intermittent streams, are no longer fully functional due to consumption of canopies by fire." (DEIS 3-59).

The BLM appears to be repeating the practices that lead portions of the watershed to be designated as deferred to cumulative hydrological degradation from logging, yarding and road building activities.

The BLM briefly states that "fire management such as construction of fireline, temporary roads, and heli pads and post-fire rehabilitation can have affects on erosion Robichaud, Beyers, and Neary 2000)." But it does not appear that the BLM attempted to quantify or analyze these impacts.

As part of its cumulative impacts analysis of the logging proposal, the BLM must assess *all* past and concurrent federal and non-federal activities that have occurred and are occurring in and adjacent to the planning area.

The DEIS totally disregards significant impacts of suppression activities that occurred during the fire. This is an important omission because scientific reviews of firefighting techniques have demonstrated significant environmental impacts associated with firefighting that should be considered in any post-fire NEPA analysis. These significant adverse effects on the environment include:

- Direct soil damage resulting from emergency road, fire line, and helispot construction.
- Hydrological impacts caused by fire lines, which route overland water flow and disrupt soil infiltration.
- Chemical pollution of water and soil from aerial flame retardant drops.
- Destruction of snags and other ecologically significant large woody debris.
- Spread of highly flammable noxious weeds.

See generally, Casualties of War: The Environmental Impacts of Firefighting, available at http://www.fire-ecology.org/research.html.

Active fire suppression operations occurred in the project area, but the DEIS does not describe these activities, their direct or indirect environmental impacts, or their cumulative effects when considered together with the proposed action. The public and the decision maker cannot learn from this DEIS whether all of these factors combined might result in significant cumulative adverse effects. Consequently, the BLM failed to give a "hard look" to the project, and to carry its burden of assessing the environmental impacts of the proposed project. Until the BLM assesses its past actions in the planning area – including firefighting techniques – the logging project must be withdrawn.

The reader is promised that A Water Quality Restoration Plan (WQRP) will be developed for the Elk Creek Watershed and will be included in the FEIS. (DEIS 3-49). Would not a WQRP be helpful for developing and identifying a preferred alternative? How can the public incorporate the WQRP into comments if the plan is

only released after substantive management decisions and direction have already been determined?

Despite acknowledging that other timber removal projects have occurred in the planning area, that there are currently projects ongoing in the planning area, and that other projects are likely to take place in the planning area in the future (such as grazing), the DEIS does not analyze these project and their impacts on water quality. NEPA simply does not allow the agency to forgo a cumulative impacts analysis (40 C.F.R. 1502.16, 1508.7).

Since the streams in the planning area already do not meet Oregon standards, how can the USFS offer a project that will exacerbate the current conditions? Does the Medford BLM possess an exemption from the Clean Water Act?

The DEIS itself states that there is a high risk of cumulative impacts to the watershed, even without the large scale proposed project. Therefore the Project should be withdrawn until data is available that shows this project will not further degrade the water quality in the planning area (40 C.F.R. 1500.1(b); 36 C.F.R. 219.14(2)).

The analysis of existing conditions of the creeks and rivers in the planning area is not based on high quality science, fails to adequately describe the current conditions of these aquatic systems, and does not accurately represent the impacts on these systems from the proposed action. The DEIS acknowledges that the water quality, quantity, and timing within the watershed have been altered, and that the proposed alternative would adversely impact water quality. Please note that the Clean Water Act does not permit "short term" degradations of water quality, and that any project that proposes such degradations is unlawful.

NOAA Consultation.

The information provided by the BLM to the NOAA Fisheries in order to support the letter of concurrence is clearly incomplete and biased towards a LAA finding. Had the clearcutting (area salvage) riparian reserve logging, ground based yarding on highly impacted soils and logging road construction been proposed previously to the PCFFA court rulings, the BLM and NOAA would certainly have determined that the project was Likely to Adversely Affect listed fish species. The DEIS indicates that the project (and associated private lands logging and road construction) will result in additional sediment pulses and will impact peak flows. The BA also indicates that the watershed is currently at-risk or not properly functioning for temperature, sediment, physical barriers, large woody debris, pool frequency, pool quality, off-channel habitat, refugia, peak/base flow, drainage network increase, road density and disturbance history. Yet the BLM is predictably proposing to continue log and yard for "economic recovery" within the Key watershed. The BLM acknowledges that the effect of the logging will be to maintain current conditions of degraded and non-functioning pathway indicators.

The NLAA determination for this, and other recent BLM timber sales, is based on political rather than hydrological science. KS Wild believes that the BLM is systematically refusing to acknowledge when its projects will Likely Adversely Affect listed fish species.

If the Medford BLM has made any LAA determinations within the last two fiscal years, please inform us of that determination. We believe that there is no situation in which the BLM will currently acknowledge that a project is Likely to Adversely Affect listed fish species.

Please see **Critical Habitat** for a discussion of issues surrounding USFWS consultation for the destruction of NSO habitat.

Economics.

The BLM continues to see only dollar signs and hear only cash registers in the Elk Creek late-successional "reserve." The same greed that produced the cumulative impacts requiring the deferral of much of the watershed is now driving the proposal to highgrade large diameter trees throughout the watershed.

The BLM acknowledges that the massive salvage logging proposed here, and throughout Southwest Oregon, could flood the local wood fiber market. Local mills may not be able to handle all of the volume federal agencies wish to extract from public lands. (DEIS 3-227) Impacts of a federal timber glut on fiber prices are not discussed. The BLM contends that timber from its "reserve" extraction activities may not go to local mills. (Id) The glut of timber on the market and the low prices for wood fiber resulted in four of six timber sales recently auctioned by the Medford BLM not attracting bids.

The DEIS does not include all costs incurred by the proposed project. For example, the DEIS does not include all expenditures to prepare the project (including administrative overhead, publication costs, survey costs, tree marking costs, etc.), nor does it include expenditures such as reforestation, aquatic, and terrestrial mitigation and rehabilitation measures.

The DEIS also does not indicate whether the timber from the project will be milled in Jacson County or exported to other locales or whether the loggers for the project will be hired from the local communities (nor can it do so until after the project has been awarded). Therefore, how can the BLM claim that jobs that benefit the local communities will be created from this project?

There is no indication that there is any demand for the trees that would be salvaged under the project. Pursuing a purpose and need biased towards "economic recovery" from the "reserve" to provide timber to an already-glutted market only serves to perpetuate the BLM's reputation for subsidizing the timber industry.

Please see **Attachment 2**: February 15, 2002 letter to RIEC from a number of prominent economists (who specialize in natural-resource and economic-

development issues in the Pacific Northwest) recommending an end to old growth timber sales. They conclude that there is "insufficient economic justification to warrant further logging of the region's late-successional and old-growth forests." The February 15th letter casts serious doubt on the idea that such large diameter forest liquidation is somehow "supporting local and regional economies." The stated purpose and need for the Timbered Rock DEIS is flawed and biased.

Roads.

Besechta et al. (1995) warned that even temporary road construction should be prohibited on burned landscapes. Existing roads in the watershed are experiencing significant slumping and failure that contributes directly to sediment loading. Commercial landings, log decks, and hauling have similar direct impacts on soil and hydrological values.

Decommission roads and restore their hydrologic function, particularly in or near Riparian Reserves, on steep slopes, and where roads are not needed to support fire management or private access. Many federal logging roads within LSR 224 in the Timbered Rock fire area should be decommissioned. As stated in the Elk Creek Watershed Analysis, "Of the 170 miles [of road] located within Federal Riparian Reserves, an estimated 74% are located within high erosion potential." (Elk Creek WA II-45).

At II-20 the WA also informs the reader that:

> Current road densities by subwatershed range from 2.74 to 7.29 miles per square mile, for an average of 5.58 miles per square mile for the watershed overall…Several sections located in the lower elevations include road densities likely to be above 15 miles per square mile…Generally, moderate to high road densities (4+ miles per square mile) tend to result in modifications to stream channel morphology, riparian vegetation, sedimentation and surface erosion rates.

These road densities are unacceptable for a LSR and a Tier-1 Key watershed. As stated in the WA "eventually ALL Level 1 roads should be considered for decommissioning within designated LSRs". WA Summary-5.

All of the proposed road decommissioning projects in the Key watershed in the DEIS are speculative depending on the vagrancies of agency funding. This can be contrasted to the certainty that: (1) roads were constructed in the Key Watershed for fire suppression; (2) roads were constructed across public land in the Key Watershed to facilitate private "economic recovery;" (3) roads have been and are being constructed on industrial forest lands within the Key Watershed; and (4) the BLM will build new logging roads and landings to aid in highgrading large diameter snags from the Key Watershed.

The construction of landings also causes erosion at elevated levels and contributes sediment over considerable distances. (Detcheson and Megehan 1996) The increased sedimentation should be considered in light of all past, present and foreseeable future activities in the watershed.

Page 3-209 of the DEIS reveals that "[s]ome short spurs were built across public lands to access private industrial forest lands under reciprocal right-of-way agreements. At the time of this analysis, the total amount is less than 5 miles." Did this road building across burned federal lands undergo any NEPA notice or analysis? Or did the BLM simply acquiesce to Boise's desire to build roads on public lands without analysis or comment?

Disclose the full amount of money spent complying with Boise Corps. ROW agreements. Through what authority were the five miles of road built? Using CEs? Why was KS Wild not afforded an opportunity to comment on the location and construction of these roads? What happened to the trees that were located where the roads were built? Are these roads also to be used for BLM access to salvage logging units? Were any surveys (survey and manage, riparian reserve, NSO) completed pursuant to this road construction? Did these roads contribute to the attainment of the objectives of the Aquatic Conservation Strategy? How close were these roads to NSO activity centers?

We support the culvert replacement you've outlined on page E-23 of the DEIS and the seasonal road closures on page E-26.

Fire and Fuels.

Use best available science

There is not a single citation to support the claims in the fire and fuels section of the DEIS. The BLM has failed to use the best available science regarding the effects of fire or the proposed logging on fire and fuels in the DEIS. Indeed, Appendix F to the DEIS contradicts several claims in the fire and fuels section.

Salvage logging would increase fire hazard

Incredibly, the Timbered Rock DEIS asserts that post-fire logging on 2,300 acres "would reduce fuel loadings" in the project area, without disclosing the significant increase in fire hazard that will result from leaving logging slash on the ground (DEIS 3-159) The Project Design Features are vague and do not describe prescriptive slash disposal or manipulation of vegetation less than 16" diameter. At the site, where post-fire fuel loading is currently low, logging without timely slash treatment is likely to be the single most important factor that will contribute to an increase in potential wildfire severity (Weatherspoon 1996).

There is no scientific, empirical evidence to prove that the presence of large-diameter standing or downed fuels translates into high fire hazard. Besechta et al. (1995) stated, "We are aware of no evidence supporting the contention that leaving large dead woody material significantly increases the probability of reburn" (p. 11).

The Besechta Report prompted responses by agency scientists. These included Everett (1995): "There is no support in the scientific literature that the probability of reburn is greater in post-fire tree retention areas than in salvage logged

sites…The authors are correct that the intense reburn concept is not reported in the literature" (p. 4).

The Forest Service's Pacific Northwest Research Station reviewed the scientific literature and concurred that, "Following Besechta and others (1995) and Everett (1995), we found no studies documenting a reduction in fire intensity in a stand that had previously burned and then been logged" (McIver and Starr 2000).

Small diameter surface fuels are the primary carriers of fire. Current fire spread models such as the BEHAVE program do not even consider fuels greater than three inches (3") in diameter because the fine sized surface fuels allow fires to spread. *Commercial* logging operations often remove large diameter fuels, which have higher surface area to volume (S/V) ratios that inhibit combustion. Moreover, logging leaves behind increased fire-prone slash and other small diameter fuels. Indeed, the Timbered Rock DEIS claims that no material less than 16" will be the target of salvage logging.

Logging would create an immediate source of highly flammable fuel. But the DEIS does not disclose how many tons of slash would remain per acre, or how its presence might influence the multitude of lightening strikes that occur in the watershed regularly (see DEIS at 3-155).

This issue is highly significant because other federal land agencies have acknowledged in NEPA documents that fine woody material up to three inches in diameter, such as the tops of trees, has the greatest influence on the rate of spread and flame length of a fire, which has direct impacts on fire suppression efforts (e.g., USDI 2002, USDA 1994). Salvage logging could increase fuel loadings by 10 tons to the acre or more. With this immediate change in the project area's fuel model, higher rates of fire spread and greater flame lengths would occur (Rothermel 1991). Direct attack of a fire would be limited under some weather conditions so indirect measures would become necessary. This, in turn, would increase the size and cost of a wildfire. Slash created by logging operations, if not treated, would also increase the duration and intensity of a ground fire.

The Timbered Rock DEIS proposes lop and scatter and piling and burning to address the fuels generated from logging (DEIS at 2-6).

New plantations would increase fire hazard

The Timbered Rock DEIS proposes to plant up to 6,000 acres. Plantations are more susceptible to severe fire effects than unmanaged older forests (DellaSala et al. 1995, Weatherspoon & Skinner 1995). The increased susceptibility of plantations to severe fire is due to:

• Structural characteristics that promote high heat energy output by fire (Sapsis & Brandow 1997).

• Warm, windy and dry microclimates compared to what would exist in an unlogged burned forest that possessed more structural diversity and ground shading (Countryman 1955, van Wagtendonk 1996).

• Accumulations of large volumes of fine logging slash on the ground surface (Weatherspoon & Skinner 1995).

The number and distribution of plantations resulting from industrial timber management likely has altered fire behavior and effects at both stand and landscape scales (Hann et al. 1997, Huff et al. 1995). Perry (1995) suggests that the existence of a threshold proportion of highly combustible even-age tree patches on a forest landscape creates the potential for "a self-reinforcing cycle of catastrophic fires." In addition, most plantations occur next to roads that spread invasive and exotic plants (DellaSala & Frost 2001) and increase the risk of human-caused ignitions during hot, dry conditions (USDA 2000).

Plantation establishment and removal of fire-resistant trees in salvage logging operations leaves too little natural forest to buffer the spread and intensity of fires. Post-fire logging and plantation establishment, as contemplated in the Timbered Rock DEIS, will reinforce a growing tendency toward high fire severity. The DEIS failed to deal with the reality that post-fire logging irreversibly hinders the natural low-severity fire regime.

Large trees calm fire behavior

Large-diameter, standing trees and down logs exhibit several features that tend to mitigate their potential fire risk and hazard. Depending on weather conditions and time of year, their presence on the landscape can serve to lower the risk of rapid, intense fire spreading to adjacent areas. In general, fires burning through heavy fuels such as large-diameter downed logs tend to burn slowly, and depending on their spatial arrangement and fuel moisture levels, large downed logs can actually dampen a fire's intensity and rate of spread.

Large-diameter heavy fuels have low surface area-to-volume (S/V) ratios, which tend to inhibit the amount of oxygen feeding combustion. This is why large-diameter fuels, such as the main stems of standing and downed trees, are not even included in agency fire spread models such as BEHAVE. The BEHAVE model only incorporates live fuels up to 1-inch in diameter and dead fuels up to three inches in diameter because these small-diameter fine fuels have high S/V ratios, and thus fuel high fire intensities and rapid rates of spread. Fuels larger than three inches in diameter do not factor in on fire spread calculations because they do not affect fire behavior until long after the fire front has passed.

Anyone who has ever attempted to start and sustain a campfire in the outdoors can understand this simple principle of fire physics. It only takes a spark or small flame to ignite small-diameter needles, twigs and limbs, but it takes considerable time and energy for fire to build up sufficient heat energy to ignite and combust a large-diameter log.

Site-specific conditions like fuel moisture levels, which can differ according to stage of decay, season of the year, and prevailing weather conditions, can further enhance the relatively low flammability of large-diameter snags and logs. Downed logs can store large amounts of water, especially if the logs lay directly on the ground surface. Forest Service research on hot, dry forest sites in the Klamath-Siskiyou region revealed that even after prolonged drought and high intensity fire events, tremendous amounts of water can still be found in the interior of logs. Indeed, the centers of large logs can actually be cool and moist even when the outer shell of a log is on fire. Consequently, large logs can provide vital refugia or "fire shelters" that enable a number of wildlife species, as well as mycorrhizal fungi and other micro-flora and fauna essential to post-fire natural recovery, to survive fires.

Over a typical fire season, this interior stored water is released slowly over time in the form of water vapor. This water release (coupled with the shade that snags and downed logs provide) can raise the relative humidity of micro-sites, which in turn tends to decrease the rate of evapotranspiration of adjacent live vegetation, and retains higher fuel moisture levels in adjacent dead fine fuels. These microclimatic effects make local sites adjacent to large-diameter downed logs moister and "greener" compared to sites devoid of large downed logs. With significant amounts of stored interior water, large-diameter downed logs can function like "heat sinks" because so much heat energy is required for fire to evaporate the water, heat and ignite the woody biomass. In effect, large downed logs with sufficient stored water function like natural fire extinguishers that can retard fire intensity and rate of spread.

Large downed logs can also provide important shade structures that obstruct solar radiation and surface winds. These microclimate influences can result in lower ground surface temperatures and reduced surface wind speeds, which translate into higher live and dead fuel moisture levels compared to areas cleared of shade from standing or downed trees. Large downed logs can also reduce the speed and variability of surface winds, which inhibits extreme or erratic fire behavior. Thus, the ability of large downed logs to store water and provide shade from the sun and wind can function to lower the fire intensity and rate of spread on those specific sites.

The DEIS failed to analyze and disclose the factors that mitigate the flammability of large fuels. It also failed to analyze the full range of adverse effects on wildlife, vegetation, and natural recovery processes (such as elimination of refugia during future fire events) that would result from salvage logging the large-diameter snags and logs. Accordingly, the analysis of tradeoffs between removing or retaining the large-diameter snags and logs is incomplete.

Noxious Weeds.

The proposals to fell, yard and haul large diameter trees in moderate and high severity burn areas and in lower severity areas along roads will maximize the spread of noxious weed species. This is antithetical to the standards and guidelines

governing Late Successional "Reserves" and the health of CHU OR-34 and the Key Watershed.

The DEIS acknowledges that "Projects in these [action] alternatives could spread noxious weeds at a higher rate than the No Action Alternative, due to a higher level of ground-disturbing activities." (DEIS 3-150) Why does the BLM believe this is appropriate for the LSR? Does the BLM contend that noxious weed spread will contribute to the stated purpose and need of the project?

The DEIS further acknowledges that the higher the burn severity the more vulnerable to noxious weed invasion and that subsequent loss of native vegetation "may be irretrievable." (DEIS 3-151) Yet the majority of the highgrade salvage logging in the DEIS is proposed for these more heavily burned areas. Also, roads are a know vector for noxious weeds and ground based highgrade yarding from the road system is certain to spread weeds.

The DEIS inadequately discusses the status of noxious weeds in the planning area. The DEIS notes that road reconstruction, logging equipment operation, and livestock are sources of noxious weed introduction. Moreover, the entire area is subject to grazing, which is known to encourage the spread of noxious weeds. Despite this fact, the DEIS does not address these combined vectors for noxious weed introduction and spread.

There is also no indication that the BLM will be able to monitor the status of exotic weeds in the planning area, or fund removal and control if noxious weeds are introduced into the planning area. The DEIS does not address the potential for noxious weed introduction into the planning area, or what the agency plans to do if supplemental funds are unavailable to mitigate and correct noxious weed invasions.

The courts have recently held that failing to address an action alternative that would prevent the introduction of noxious weeds is arbitrary and capricious, and violates NEPA for failing to consider a reasonable range of alternatives (*Blue Mts. Biodiversity Project v. United States Forest Serv.*, 229 F. Supp. 2d 1140, 1147 (D. Or. 2002)).

Grazing

Livestock grazing poses a potential threat to salmonids. On uplands, soil is compacted and the vegetative composition is changed, increasing runoff and erosion. Streambank vegetation and stability decline when livestock are concentrated in waterways. The combination of increased erosion, loss of riparian shade, and the loss of streambank stability lowers water tables and causes streams to become wider but more shallow, warmer in summer but colder in winter, and poorer in instream structure but richer in nutrients and bacterial populations. All these effects can adversely influence salmonid populations (Meehan 1991). Overgrazing by livestock can lead to a reduction of soil structure, soil compaction, and damage or loss of vegetative cover (Lee et al 1997).

Loss of soil structure, soil compaction, and damage or loss of vegetative cover contributes to an increase in the rate and erosive force of surface runoff (Meehan and Platts 1978; Thurow 1991). The concomitant increase in soil erosion leads to a loss of stored nutrients in the soil and a decrease in the level of vegetative productivity (Thurow 1991).

Riparian areas often are overgrazed by livestock (Lee et al. 1997). Livestock grazing can alter the species composition of streamside vegetation (Archer and Smeins 1991; Platts 1978; Stebbins 1981; Thurow 1991; Vollmer and Kozel 1993) and diminish vegetative productivity (Archer and Smeins 1991; Horning 1994; Meehan and Platts 1978; Platts 1978; Thurow 1991; Vollmer and Kozel 1993). Grazing alters riparian vegetation by removing deep rooting plant species and decreasing canopy cover and riparian vegetation height (Platts 1991). Grazing has been implicated in the alteration of species composition of vegetative communities and associated fire regimes (Agee 1993; Leopold 1924).

Grazing is a major nonpoint source of channel sedimentation (Dunne and Leopold 1978; MacDonald et al. 1991; Meehan 1991; Platts 1991). Grazed watersheds typically have higher stream sediment levels than ungrazed watersheds (Lusby 1970; Platts 1991; Rich et al. 1992; Scully and Petrosky 1991). Runoff contaminated by livestock wastes can cause an increase in potentially harmful bacteria (Taylor et al. 1989; Hall and Amy 1990; Thurow 1991).

Sediment loads that exceed natural background levels can fill pools, silt spawning gravels, decrease channel stability, modify channel morphology, and reduce survival of emerging salmon fry (Burton et al. 1993; Everest et al. 1987; MacDonald et al. 1991; Meehan 1991; Rhodes et al. 1994).

With this in mind, we have many questions and concerns regarding the continued grazing referred to in the DEIS. The Timbered Rock DEIS admits that logging and other post-fire activities would change the movement of the cattle grazing in the fire area. Given that roadside and upland activities are the focus of the project, one is left with the conclusion that cows will be more concentrated in the riparian areas as a result. How would increased grazing in riparian areas lead to an attainment of ACS objectives?

This DEIS is called "Timbered Rock Fire Salvage and Elk Creek Watershed **Restoration** Project." What about all the impacts that grazing is having on watershed function? Why is the BLM not going to restore the watershed from those impacts? The BLM should use the opportunity presented in this NEPA document to lessen the amount of grazing in the Elk Creek watershed or at least mitigate its impacts.

Will grazing along with post fire logging increase the rate of erosion and sedimentation? Elk Creek is heavily disturbed already and the impacts of grazing on sensitive post fire soils, rare plants, wildlife and waterways would be cumulative. Continued cattle grazing will not help the condition or the fish in Elk Creek. What are the long term direct, indirect and cumulative effects of grazing?

ADDITIONAL SIGNIFICANT ISSUES –

** **Backburning and Heli-Torch impacts** – while the BLM and ODF have been less than forthcoming in providing documents regarding fire suppression and response activities, several fire fighters have indicated informally that some of the Flat Creek portions that burned with high intensity were the result of a Heli-torch backburn. Why does the DEIS not disclose the location and impacts backburns and burnouts?

** **Interface fire hazard and risk** – use National Fire Plan money to educate residents about high-risk behaviors and land uses, and to reduce hazardous fuels within defensible spaces surrounding private residences.

** **Aggressive commercial thinning** – the DEIS calls for logging 30-80 year old green stand down to 50% canopy closure within the LSR. Will this not cause NSOs to avoid the stands in the very time period in which prey-species are still recovering from the fire?

** **Pileated Woodpeckers** – the DEIS fails to fully disclose or examine site specific and cumulative impacts to pileated woodpeckers.

Thanks for the chance to comment.

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1

BUREAU OF LAND MANAGEMENT
ATTN LANCE NIMMO/ID TEAM
COMMENTS, TIMBERED ROCK DEIS
3040 BIDDLE RD
MEDFORD OR 97504
10/15/03

Lance Nimmo/ID Team:

Please accept the following comments on the Timbered Rock DEIS. My name is Susan Delles. I live in the Evans Creek Watershed of the Butte Falls RA and am a Board member of Headwaters.

I **PURPOSE AND NEED**
The necessity for the proposed action is described as follows:
A. TO IMPLEMENT RESTORATION PROJECTS IN THE ELK CREEK WATERSHED
These projects are not confined to the area within the fire perimeter but will be taking place in the unburned part of the LSR as well. Many of these areas have a roadless character conducive to the survival of old growth species of plants and wildlife. When so much of the watershed is burned, the appropriateness of implementing management activities in the untouched part of the LSR that may be dispersal for these species is questionable.

B. SALVAGE-RECOVERY OF ECONOMIC VALUE OF BURNED TREES
The Purpose and Need is arbitrary in this regard. Economic recovery would seem to be guiding this project. Pg B-28 of the LSRA states that, "The core team(LSRA team)has not found a biological rationale for salvage and the criteria for salvage are meant to minimize the effects to the late-successional Reserve Species." Also, "salvage must be based on site specific conditions with the understanding that salvage operations should not diminish late-successional habitat suitability now or in the future." The LSRA on pg 29 states that, "A review of the research on decay rates of snags and down wood suggests that much of the material 16" or greater in diameter would remain on a site(unless a subsequent reburn occurs)until the next forest stand could begin to input this size of material again." On pg 30-under Objectives that; "one maintains most of the large amounts of dead wood that are contributed to the landscape following stand replacement events; and one that results in an exemption from further REO review for **conservative** amounts of salvage." This project has not incorporated upper diameter limits and plans, in the preferred alternative, to harvest more in specific sites than is left on the ground. The REO has

2

approved this project but there is a strong question if LSR values are being sacrificed to economic gain.
C. POST FIRE RESEARCH PROJECTS
These are discussed under Alt G(the preferred Alternative). These projects have a very negative potential effect on a landscape that has already been highly stressed. Some of these amount to salvage "clear cuts" leaving 6 TPA and have no place in LSR management. OSU foresters could contract with private industrial land owners who regularly do this type of management and have been impacted by the fire. The AMAs might also be a place for projects of this type.
D. NEED
1. The first need mentioned is "to rehabilitate fire damaged landscape".
The fact that major human intervention is necessary after a large fire is questionable. Fires are a natural part of the landscape in the LSR. The desire to accelerate the recovery process is understandable and sometimes necessary. However the extent to which the landscape must be managed is important to consider. To error on the conservative side seems appropriate.
2. "To assess changes in late-successional habitat conditions within the Elk Creek LSR." This implies post fire implementation and effectiveness monitoring. Even though this is addressed in the WA, very little of the DEIS was devoted to this ie how and when it will be done. It was not clear if changes from the fire are being assessed or if changes from management projects will be assessed. This document addresses the former to some extent but makes no plans for the latter.
3. Other bullet points under NEED have been or will be addressed.

II **OBJECTIVES AND ISSUES**
Indicators were not discussed with the issues or objectives. The DEIS needs an implementation and effectiveness monitoring section for each proposed action.

A. MANAGE TO PROTECT AND ENHANCE CONDITIONS OF LATE SUCCESSIONAL AND OLD GROWTH FOREST ECOSYSTEMS
Issue 4 covers this late-successional Forest Habitat
This objective and issue deals with what is required to achieve a desired condition that is appropriate. However, there is no indicator about measuring effectiveness because it can not be known in the short term. Will cutting old growth canopy to 40% accelerate the development of late-successional characteristics? An indicator of late-successional development would be monitoring spotted owl demographics while doing conservative management.

3

B. REDUCE THE POTENTIAL AMOUNT OF SEDIMENT RESULTING FROM FIRE AND ANY PAST OR FUTURE MANAGEMENT ACTIONS
Issue 5-Road Densities(an indicator of sediment) and
Issue 6-Cumulative Effects caused by industrial land logging
Indicators of improvement would be:
1. Monitor road conditions and drainage(WA) before and after repair and decommissioning
2. Monitor stream sedimentation(not in WA) by the ton

C. MANAGE TO CREATE PROTECT AND IMPROVE SPECIAL HABITATS WITHIN THE ELK CREEK WATERSHED(WA)(ACRES)
This refers to the number of acres that would be treated for special habitats and would be appropriate for implementation but not effectiveness monitoring. A plan needs to be established for indicating how the management actions are effective.

D. RESTORE ANADROMOUS FISH HABITAT TO INCREASE SURVIVAL RULES BY..(a list of actions is given that should be part of the action alternatives. Miles of habitat restored is implementation. Effectiveness might be measured in increased fish survival rates over the years.
Issue 7-Threatened and Endangered and Other Sensitive Species might be used here but a better one might be Aquatic Habitat Conditions

E. MANAGE THE LSR TO A LEVEL WHERE NO MORE THAN 28% OF ACRES ARE IN A HIGH FIRE RISK CONDITION(LSRA)(ACRES)
This is a questionable objective even though recommended in the LSRA. Maintaining the LSR characteristics should be the first priority. Fuel Breaks recommended in the LSRA may or may not be effective(to be explored in depth later). Fire suppression may or may not be practical in the LSR.
Issue 2-Fuel Loading within the Elk Creek Watershed

F. IMPROVE EXISTING SUPRESSION FACILITIES AND REESTABLISH THE ROLE OF FIRE TO REDUCE WILDFIRE SIZE AND COST AND TO INCREASE RESILIENCY TO SITE DISTURBANCE.(this ties in with Objective 5)
Issue 2-Fuel Loading
This might be considered in a few years when other projects have been evaluated. Effectiveness monitoring would be hard to establish.

G. OPTIMIZE ECONOMIC RECOVERY OF FIRE-KILLED TREES, WHILE MEETING LSR AND WATERSHED OBJECTIVES(NFP)(LSRA)(MMBF)
Issue 1-Recovery of the economic value of fire-killed trees
The indicator for this would be timber receipts. This was discussed under PURPOSE AND NEED. This objective should be

4

prioritized after the other projects and should not drive the management objectives.

H. WHERE POSSIBLE CONDUCT SCIENTIFIC INVESTIGATIONS THAT COULD BE IMPLEMENTED WITHIN THE LSR TO RESPOND TO CONTROVERSIAL ISSUES AND SCIENTIFIC UNCERTAINTIES RELATED TO SALVAGE OF FIRE-KILLED TREES OR FIRE EFFECTS ON CRITICAL RESOURCES. AND
I. ANALYZE EFFECTS ASSOCIATED WITH FIRE SALVAGE SO FUTURE EFFORTS CAN BE TIERED TO THIS ANALYSIS
The proposed research projects have been addressed and can be done in a different venue. Part of the regular salvage already planned in the Preferred Alternative could also be designed to be used for research. Objective 9 could tie in with this. There is no need to salvage extra areas of the LSR and add to the degradation of the watershed.
All issues except # 1 could apply to this.

J. ISSUE OF MAJOR CONCERN-CUMULATIVE EFFECTS
1. PRIVATE LAND TIMBER EXTRACTION
This issue will effect all federal lands in the watershed. Industrial foresters are in the process of salvaging 6000 acres. Much of this work started right after the fire. (DEIS-3-104). Even though this is not federal land, it could count toward economic recovery of the watershed. The watershed was deferred from BLM logging in the 1990s(RMP) largely because of cumulative effects from private industrial logging. Should not deferred status still be in effect due to the even more critical condition of the land.
Also, heavy herbicide spraying of highly toxic chemicals such as 2-4-d that was done by private industrial foresters could effect fish and wildlife. BLM should monitor for adverse effects from this.
2. OTHER BLM TIMBER SALES
Trail Creek Timber Sale to the west and the proposed Flounce Around Timber Sale to the south in the Lost Creek watershed will add to the cumulative effects of this project. Please consider deferring these sales for a few years so plants and wildlife can disperse and recover.

III **ALTERNATIVES**
Thank you for providing a wide range of alternatives for these projects. Since none of the alternatives is ideal, I will discuss four of them that I could consider. I will then discuss my alternative. The Preferred Alternative will be the reference point for the others.

5

A. MANAGEMENT PRIORITIES
Any management in this area should include:
- As much road decommissioning as possible inside and outside the burn perimeter
- Replacement of culverts and stream crossings
- Repair of roads that are not decommissioned with rock
- Repair of pump chances
- Closure of Quarries
- A small amount of down wood added to streams
- Other than decommissioning roads, limit restoration projects to those planned within the burn perimeter.
- Do no management in areas with roadless characteristics such as 33S1Wsec 13;south half sec 14; south half sec 12(except decommission roads) east half sec 24; sec 11;east half sec 10; sec 2; south west corner sec 1; 33S1E west half sec 19; north half sec 25. These are an important refuge for wildlife. Road decommissioning in Sec 12 and 14 would be the one exception to this.

B. ALTRNATIVES
1 ALTERNATIVE A-NO ACTION
This is a definite consideration since the ESRP program has been implemented. Some roadside salvage would be allowed and funding availability could allow some limited restoration. This might be the least damaging of the alternatives.

2 ALTERNATIVE B
This is an Alternative that could be advantageous to the watershed. However, it includes fire and restoration work outside the burn perimeter that should be dispersal areas for owls and other wildlife.

3 ALTERNATIVE F(Beschta Alternative)
This is not really a Beschta Alternative because there is no upper diameter limit to salvage even though he recommends leaving 50% standing dead trees in each diameter class. He also recommends against using ground based yarding systems such as tractor and bull line. The tractor unit in Sec 29 has good soils but was very badly burned. Tractor yarding in badly burned areas is problematic. Units on erosive soils in 32S1E sec 17,15 could also cause problems with tractor yarding. The chart on pg D-27 did not show TPA to be left-only acres available for salvage. It is not clear if those acres to be salvaged will have all trees cut. This alternative has a lot of roadside salvage with logs being skidded to the road. Most soils in this watershed are erosive and could cause problems. Beschta also recommends that hazard trees be left by the road rather than hauled out.

6

This would be a good alternative if the above suggestions were considered.(Roadside salvage will be discussed on pgs 7/8)

4. ALTERNATIVE G(Preferred Alternative)
There are many problems with this alternative. These problems stem from the large volume of management activities on a landscape that has been highly stressed.
a <u>High Salvage Volume</u>
The volume of salvage in this alternative is almost as high as that of alternative E(the highest salvage alternative). Leaving 12-15 snags per acre is not enough. In some place it could be as low as 6 snags per acre and they would be small as only the larger trees are merchantable at this time.
b <u>Soils</u>
Most of the salvage takes place on steep slopes on soils that erode easily.(Straight/Shippa) with high runoff potential. I would dispute map 3-4 that these soils have moderate erosion potential since most of them are on steep slopes. All yarding methods will be used, including ground based tractor methods. If the soils have become hydrophobic from the fire and this effect still persists, this could add to compaction and run off. Although these are for the most part, not clay soils, tilling and ripping may or may not improve the condition. Observation of private industrial activity effects on soils might indicate the potential for soil problems in this project.
c <u>Riparian Restoration(thinning)</u>
This should be discouraged because standing vegetation is necessary for shade and lower stream temperatures. A balance must be provided between providing LWD and standing vegetation for lower stream temperature. See how the area recovers before planting is done because plantations are prone to fire. Riparian thinning should not be used as an excuse for logging green trees in the LSR. Retain as much vegetation as possible for shade.
d <u>Other Restoration Projects</u>
The DEIS was not clear about canopy closures for restoration projects. How much would the present landscape be changed? Would the Oak Woodlands restoration plan be an enhancement of an area that is already open oak woodlands or would this area be created by harvesting old growth? What do the Pine Restoration areas currently look like? 40% canopy should not be the standard for green tree retention in any part of the LSR except for naturally occurring open areas. This will be discussed further in this paper(pg 9). Restoration projects(except road decommissioning) should be limited to the area inside the burn perimeter. Owls and other wildlife need dispersal areas. Large fire breaks and further logging will fragment the habitat even more. Pg 2-67 in the DEIS states that, "FMZs increase protection of late-

7

successional habitat but reduce canopy cover." This is a contradictory statement since late-successional species depend on a closed canopy. Therefore, reducing the canopy will not be protecting habitat.
e Eliminate Research Projects(discussed under Purpose and Need)

5. OTHER ALTERNATIVES

(MY ALTERNATIVE) based on burn severity and soils by location
a 32S1W SEC 1/ 32S1E SEC 3/4/5
high/moderate burn/
Straight/Shippa-steep slopes-35-70% some McMullen rock outcrop
These soils are in a heavy burned area and are highly erosive with severe runoff potential. This is also in the TSZ. Salvage should not be done in these areas

b 32S1E SEC 10/11-
heavy burn-severe runoff potential
these are the same conditions as (a) but an owl activity center has burned.
The NW corner of SEC 11 is still dispersal habitat/leave this alone. The East half of SEC 11 was not burned and would be good dispersal habitat for owls. Reconsider reburn at a much later date.

c 32S1E SEC 9
burn is high/moderate-Salvage is OK on Freezner/Geppert soils which are fairly stable but not on 185G series. There is suitable owl habitat that underburned but in some places is listed as a heavy burn(it was not clear what it was). Leave surviving owl habitat alone. Do not salvage in units 321e9u2. Some roadside salvage and reforestation is OK.

d 32S1E SEC 8
Some areas burned heavy(SE corner). This is no longer an owl activity center. Some areas just underburned. There is severe erosion and runoff potential. Soils are not good for management. Closing the quarry is a good thing. Stay out of owl areas that underburned so they may be used for dispersal habitat.

e 32S1E SEC 7
The burn is heavy/moderate and the soils are erosive and have a high runoff potential. If roadside salvage is done, trees should be left. The combination of the large fuel break and roadside salvage is particularly disturbing. Road decommissioning should be done. Do not salvage the SW corner of this section.

8

f 32S1W SEC 12/13
Soil runoff and erosion potential is severe to moderate. Section 12 is still suitable howl habitat that mostly underburned. Leave this for dispersal habitat. There are cumulative effects in the east half of this section with industrial forest land which might have led to sedimentation in Flat Creek and tributaries. Decommission roads and fix stream crossings and allow owls to disperse into this area. Do no late-successional restoration.

g 32S1W SEC 13/14
This is a high/moderate burn area with the same soil problems mentioned above. Map 2-6 shows a salvage unit 14u2 in the NE half of SEC 14. The soils map with listed units does not show this. Eliminate this unit if it is still planned for salvage. Eliminate the large fuel break through the owl dispersal area that was underburned. SEC 14 is still critical habitat and should not be salvaged or thinned.
SEC 13 shows the northern third still listed as critical habitat that underburned. Do not put a fuel break through this area. The south part of SEC 13 lost the owl activity center. Light salvage and road decommissioning might be OK in this area except the soils are marginal. Leave at least 20-25 SPA.

h 32S1E SEC 17
Soils in this section are the same as above for salvage units. Units in this area are classified as Moderate/heavy burn in Appendix D but map 3-16 shows mostly owl habitat that has underburned and is still intact. The heavy salvage research unit should be eliminated. Other planned salvage might be OK but leave 20-25 SPA. Fix stream crossings and decommission as many roads as possible.

i 32S1E SEC 15
Soils in unit 6 are Freezner/Geppart and more stable than others listed. Salvage is Ok in this unit but there is too much salvage in the rest of this section on soils that are like those listed above. Eliminate the fuel break and tractor unit(321e15u1t). Fully decommission roads planned for this and also roads scheduled for partial decommissioning.

j 32S1E SEC 13/23/27/35
This is critical habitat in an unburned area. Do no restoration unless you want to decommission some roads. Soils in this section are mixed.
k 32S1E SEC 21
This sliver of land is in a high/moderate burn area. It is surrounded by private industrial land that was heavily logged.

9

The owl activity center was destroyed in the fire. Units 1 and 2 are on more stable soils. Some salvage is OK but leave more snags per acre(SPA) as cumulative effects will be heavy. Replanting federal land will probably fit in with the management plan for the rest of the section.

l 32S1E SEC 19
Soils are still erosive with severe/moderate runoff potential. The south third of the section has a high road density. Parts of the section had high/moderate burn severity and the center of the section remains underburned critical habitat. An owl activity center burned in the SW corner. A very light salvage might be OK in this area. Eliminate the heavy salvage planned for the research project. This is totally inappropriate. Decommission roads and eliminate all management in the south center of the section that remains critical underburned owl habitat.

m 32S1W SEC 24
This has the same sensitive soils as previously mentioned. Eliminate the research unit and salvage in this section.

n 32S1W SEC 23
This has a mix of soil types. Inside the burn perimeter Map f-6 on Alt G shows salvage planned. The soils map on Alt G does not show this. These soils are more stable and salvage might be OK. Restoration projects outside the burn perimeter should be eliminated. Decommissioning of roads and pump chance restoration is OK. Most of this is unburned critical habitat and should be left alone.

o 32S1W SEC 22
If this section is close to occupied private land, thinning is appropriate, if not, use the same plan as for SEC 23.

p 32S1W SEC 25/26/27
This is underburned critical habitat. Decommission all roads that are scheduled for this. Repair pump chances and stream crossings. In SEC 27 eliminate all management and evaluate plans for underburning in a few years. SEC 25-limit salvage to units 3,4,6. Complete culvert work in SEC 26. Do no other management.

q 32S1E SEC 30/31
This area has more stable soils. Manage as planned. Fully decommission the road after management is completed.

10

r 32S1E SEC 29
This is a heavily burned section with mixed soil types. Most management consists of the research projects that don't belong in the LSR and should be eliminated. The control unit in the SE corner will have a large fuel break going through it. This will change the landscape and makes the control meaningless. If the research projects are eliminated the rest of the management planned might be OK. However, massive plantations are at high risk for fire.

s 32S1E SEC 35
Eliminate management outside burn area

t 32S1E SEC 33
This is a high burn area. Eliminate heavy salvage research project with tractor yarding. Soils are more stable but the project is potentially damaging. Nowhere in the document could I find an explanation of "high priority riparian area" as opposed to riparian thinning and other restoration projects. I assume it is part of the reforestation plan since it was on map 2-4.

u 32S1W SEC 34/35: 32S1W SEC 2/3
Management is unnecessary in these sections since they are outside the burn perimeter

v 33S1W SEC 1
Soils in this section are stable. Light salvage is OK

w 33S1E SEC 5/8
Soils are relatively stable. Change tractor unit to a different yarding method(33le5u). Large plantations covering almost half the section might be a fire risk.

x 33S1E SEC 7
This is a high/moderate burn area where the soils are basically stable. Eliminate the research project. Other management is OK

y 33S1E SEC 3/9/10/15/21
Soils are relatively stable. Burn was slight with a few patches of high burn. Stay out of intact owl activity centers. Light salvage is OK. Pine sites and Oak Woodlands are questionable.

Eliminate from the plan: 33S1Wsec 13;south half sec 14; south half sec 12(except decommission roads) east half sec 24; sec 11;east half sec 10; sec 2; south west corner sec 1; 33S1E west half sec 19; north half sec 25. These are an important refuge

11

for wildlife. Road decommissioning in Sec 12 and 14 would be the one exception to this.

6. ALTERNATTIVES C, D, E
These are unacceptable because there is too much management. If used as one tool in conjunction with many others, the DECAID wood advisor might be useful.

IV **MANAGEMENT PROPOSALS**

A. SALVAGE
On pg B-28 of the LSRA it states, "The core team has not found a biological rationale for salvage". It also states, "salvage operations should not diminish late-successional habitat suitability now or in the future".
1. Guidelines
Beschta offers suggestions about guidelines for salvage. He recommends that salvage not take place:
- In low and under-burned areas that have greater than 40% canopy.
- In riparian zones
- On steep slopes
- On soils with erosion and severe runoff potential

He also says,
- "Leave at least 50% of standing dead trees in each diameter class"
- Leave all trees greater than 20" DBH or older than 150 years.
- Generally leave all live trees

Alternatives F and B comes the closest to meeting these objectives. However, the extensive roadside salvage and lack of upper diameter limits make these alternatives flawed. The Preferred Alternative does not meet any of these standards.
2. Roadside Salvage
All alternatives contain extensive roadside salvage. Most of these snags will not be left by the roadside as is recommended in the LSRA but hauled out and sold. The purpose of roadside salvage is supposed to be done to remove hazard trees. Yet for each alternative the acres available by burn severity(Table 2.3-2) are different. If these represented only hazard trees, the number of trees being harvested for roadside salvage would be similar for each alternative. Roadside salvage, rather than just taking some hazard trees, depending on the alternative, actually enlarges the roadside area by clearing large tracts of land around each road. This brings with it many problems caused by roads such as soil erosion and compaction and excessive run off.

12

Therefore Alternative F has a higher sedimentation/erosion potential than Beschtta would have intended because of the high roadside salvage acreage(Table 3.3-11) and tractor/bull line yarding.

B. RESTORATION PROJECTS
There is an excessive harvest of green trees in these projects. We don't need more timber sales on a landscape already stressed. Some of these projects would be better implemented in the Matrix.
1. Fish Habitat Improvement
Beschta et al(Mar/95) recommends against use of hard structures such as weirs, sediment traps and gabions, because the post fire landscape is extremely dynamic. The weirs and gravel planned for this project might not last. He does recommend improving stream crossings and recruitment of LWD in streams. He also recommends road improvements or obliteration. Most of these activities are incorporated in the management plan. However, there is too much riparian thinning for LWD in streams planned(15-25 logs per mile seems excessive). The text on Pg E-2 does not say how many large green trees(20-24") would be cut to contribute to LWD. The trees might be better off left sanding and holding the soil. In a few years when recovery is monitored, a further needs determination could be made. Avoid disturbing existing riparian vegetation any more than necessary.
2. Late-Successional Forest Habitat Restoration
Most of these projects are located outside the burn perimeter in critical habitat and owl activity centers. Elk Creek is also a Key Watershed that is supposed to be protected from logging. This part of the plan seems like an excuse to cut large green trees in the LSR. If there are young conifer plantations(10-30 years), they could be thinned. Otherwise stay out of these areas entirely.
Riparian Thinning
This issue is addressed under III-5
In general do not thin in Riparian Reserves
4. Pine Habitat Restoration(Alternative G)
a. PCT stands 10-30 years old(small trees) is appropriate since these stands are fire prone. Early seral brush could also be cut.
b. Commercial thinning to a 40% canopy closure in the LSR is never appropriate especially in areas outside the burn. This is logging old growth and is unacceptable.
c. Stay out of areas with Roadless Characteristics such as that mentioned on pg 5-A

13

5. Oak Woodland Restoration
These could be beneficial projects in small areas if thinning is restricted to small trees and brush. It was not clear how much Douglas Fir and Incense Cedar would be removed or what size they would be. How large an area around the edges of the meadows would be cleared? Most of the west half of 33s1E Sec 19 would undergo this treatment. The areas under consideration are too vast. One of these areas has roaddless characteristics, and if it is not already close to the desired future condition, should be left alone.
Burn treatments, if done conservatively, could be beneficial in a few years.
6. Reforestation
The vast numbers of acres of plantations planned will increase fire risk. 33S1Esec 5 is of particular concern in this regard. The large fire breaks planned throughout the watershed to protect these areas fragment the forest and cause other problems(discussed on pg 12). However, some planting might be necessary to restore vegetation to bare landscapes. Alternative F has a more scattered approach to plantations except for 32S1Esec29 which was badly burned. The research project for plantations could be used within this alternative.
7. Roads-Decommissioning and Repair
Fully decommissioning as many roads as possible will improve water quality in the watershed by reducing sediment in the long term. Elk Creek Watershed(especially the northern half) has a high road density and soils that have a high runoff potential. Many of these roads are in poor condition and contribute to sediment load in streams. The practice of renovating or partially decommissioning roads that will continue to deteriorate is questionable. Either improve the roads with rock and appropriate stabilization structures or fully decommission them.
8. Pump Chance Repair/Rock Quarry Closures/Wildlike Enhancement
All of these projects are important and should be implemented as planned.
9. Noxious Weeds
The document stressed the neea to eliminate noxious weeds but did not discuss methods for doing this. I have a concern that the large amount of extremely toxic herbicide (2-4-d)used on industrial lands could contribute to a potential cumulative impact if BLM were to do the same thing. This could effect fish and wildlife.
The importance of controlling noxious weeds is not in question. The best way to do this is by preventing infestations as much as possible. The more roads that are closed and decommissioned the better. Large reforestation projects could also contribute to

14

future infestations. This topic needs more discussion with a methods and materials section for implementation.

V EFFECTED ENVIRONMENT

A. SOILS
I would like to express my appreciation to Mark Prichal for the soils maps and the literature he gave me. They were most helpful.
1. Soil Types/Hydrophobic Condition
Most of the soils in the northern part of the project area are erosive with a high potential for run off(map 3.5) Some sources list the potential for erosion as high(WA/JCSS), others(map 3.4) list this potential as moderate. Most of the soils in the project area, with the exception of a few inclusions that are Freezner/Geppart, are Straight/Shippa complex. The Shippa part of these soils is of particular concern(WA-pg 14) ie being very erosive and shallow(does not have a place for roots to develop) To add to this condition, the fire has produced a hydrophobic condition(EIS pg 3-21) that makes the run off problem worse as long as it persists which according to the EIS could last several years. It was not clear if this condition was assessed since the winter of 2002 after the fire.
Past and present literature that Mr Prichal shared with me challenges the Beschta conclusion that salvage after a burn can have a negative impact on soils. Ice & Bestcha(1999) debates this issue. The results were inconclusive. The recent paper by Poff(2002) researched an entirely different ecosystem with different soil types from the Elk Creek Watershed. He claims that salvage litter contributes to soil health and reduces erosion if done immediately after the burn. It was not clear if the litter was spread over the entire salvage area or hand piled for burning. The paper does say on Pg B-14 that, "Information in this report on the effects of fire on soils or about the effects of salvage logging should not be generalized or extrapolated to other areas without an on-site examination to verify soil types, pre-burn conditions, burn intensities, rainfall events, landscape elements, and other variables are similar." In short, soils work is of necessity, site specific. Since I am not familiar with the soil types and the ecosystem discussed in the paper, I am not qualified to discuss how these burns may be interrelated. The paper goes on to say that "the greatest benefit is achieved when salvage logging is done soon after the fire". This does not happen on public lands because of the need for public comment.
Beschta(1995) of course disagrees with this premise and says salvage logging is harmful to soils and the ecosystem in

15

general. He is updating his 1995 paper with a publication to be appearing in "Conservation Biology" in the near future.
The DEIS has recognized this controversy under Issues (Pg v). It is obvious that more research needs to be done on this issue. However, it might be prudent to take the conservative approach when planning actions until the issue is resolved.
"Topsoil-even that which has been burned, provides 75-90% of the productivity of the site. If it is removed, the site is adversely impacted." (George Badura Soil scientist USFS-40 years)
2. Scale of Mapping
Because of the site-specific nature of soils work, it is not really accurate to rely only on the Jackson County Soil Survey scale of mapping. This project might demand a level 4 or 5 scale of intensity rather than level 1 or 2. Site specific mapping should be done in the field before management plans are formulated. There was no discussion in the DEIS about this type of work being done in the field.
3. Yarding Methods
Play it safe and eliminate tractor yarding from the salvage plan. Use of ground based yarding equipment can lead to compaction and increased run off potential even on shallow slopes. According to the WA(Pg 15)surface erosion is also a main concern.
4. Landslides
The DEIS on pg 3-26 states that there will be minimal landslide potential from salvage in the uplands. However, the effects from private land salvage are unknown. Stream crossing will be repaired and temporary roads decommissioned. However, given the soil types in much of the project area, there is still cause for concern when so much ground cover is disturbed.

B FUELS
1. Large Fuel Breaks
a. These are too large and take up too much of the landscape. They are discussed and proposed in the LSRA. Although the LSRA issues a word of caution. "Implementation of fuel breaks within late seral stands would result in habitat degradation within the fuel breaks and increase the amount of edge where the fuel breaks go through intact stands. Therefore avoid locations which would split large blocks of late seral habitat. Place fuel breaks only along edges of significantly large patches of late seral habitat/Suitable NRF where high risk of large scale loss exists". It was not clear if these are to be shaded or stand replacement fuel breaks. Some are planned in roadless unburned areas such as 33S1W Sec 13. Do not build fuel breaks in these areas or around the SW

16

watershed perimeter. It would be like putting a road through the landscape. The watershed is in its natural range of variability for fire return so logging green old growth is unacceptable and will contribute to fire risk.
b. There is other evidence that suggests that large fire breaks have the potential for causing harm or at the very least being ineffective. The Spring Salvage Timber Sale in the Umpqua NF Level 1 Team (March 1998)consultation determined that the purposed sale was not consistent with applicable Standards and Guidelines nor the spirit and intent of the ROD for the NWFP. Regarding large fuel breaks, it concluded that, "it is our opinion that the fuel break proposal would not be effective in controlling large fires, although they might be effective in controlling small, low intensity burns. These are precisely the types of burns that should be occurring in the LSR. They are proposed as part of the future fuels plan in the Oak Woodlands Restoration Plan and in some owl activity centers. Massive fuel breaks are inappropriate in LSR old growth but might be OK between federal land and private homeowners.
c. Other facts about large fuel breaks
- Fuel breaks must be maintained about every two years to be effective. The costs should be analyzed
- Removing large trees in fuel breaks leads to an increase in soil and air temperatures. The soil dries out. This could lead to decrease in microclimate characteristics and wider temperature swings.
- Fuel breaks would be on ridge tops with erosive soils and could have a similar effect as road building.
- Fuel breaks are barriers to the movement of some wildlife, sources of sedimentation and islands of damaged soil. Thinning of brush and small trees should be used to reduced fire risk.

C. FISHERIES
All fish populations would be aided by the removal of Elk Creek Dam. Appendix J had some interesting data showing good recovery of stocks in the watershed. However, few explanations were available for interpretation. Pg 3-75 says that "Salvage and other harvest have a negligible to nil effect on fish populations when riparian reserves remain. This is a strong case for not cutting much in the Riparian Reserves. It must also be balanced with the need for LWD and rebuilding habitat complexity. The extensive herbicide use by industrial foresters could also be harmful to fish and populations must be monitored for effects using present population numbers and health as a baseline.

17

D. HYDROLOGY
1. Sediment
- **Road density** is the main cause of this. Decommission as many roads as possible-rock others.
- **Roadside salvage** is one of the largest causes of sediment transfer(Table 3-3-11)along with ground based yarding systems. Roadside salvage uses ground based yarding systems exacerbating the problem
- **Cumulative Effects** from private industrial forest logging and road building has contributed significantly to the hydrological problems in the watershed. This should be more thoroughly considered when federal projects are planned.

2. Temperature/Dissolved Oxygen
- Reconsider the volume of planned riparian thinning. Leave as much standing vegetation as possible. Shade effects water temperature. Alternative G is extremely harmful in this regard.
- Planting could be done in Riparian areas if most of the existing vegetation is retained as well.

3. Channel Morphology
- The grazing ban is important and should last more than 2 years. Cows should really have no place in an LSR.
- Complete instream culvert replacements and road crossing upgrades
- Reconsider hard instream structures such as weirs with large volumes of rock and gravel. These might not stay in place.

4. LWD
- Balance the need for this with need for shade and standing vegetation. Consider natural recruitment of LWD on hill slopes and in streams that would be present if salvage were reduced.
- Some creeks in this and other watersheds such as Trail Creek have been scoured to bed rock because of the loss of riparian vegetation and LWD.

5. Water Quantity
- A contradiction exists with regard to **peak flows** in research done by Boise(1999). Under Stream Flow it says that "predicted peak flows are small in the basin from historic to current conditions because estimated crown closure density is greater today. "This can also be attributed to the fact that not much snow accumulates on the ground in the majority of the watershed." It also refers to the changes between sub watersheds and the fact that "Bitter Lick Creek sub-basin has the highest potential for increases in peak flows since the area has not been harvested and fire suppression has increased

18

stand densities". It would seem that dense stands can decrease the difference between peak and low flows because of the water holding capacity of a wooded landscape.
- Sections 32S1W SEC 1,11,13,23,24,27,25 and 1E Sec 3,7,19 are in the **TSZ(Transient Snow Zone)**. Management in these sections could exacerbate burn effects and contribute to the consequences of Rain On Snow events should they occur.

E. WILDLIFE
1. Habitat Projects
Bald Eagle habitat-It was not clear if the area with this designation is the current habitat of Bald Eagles. If not, what is the current condition of the land?
a. Spotted Owls
The owl habitat destroyed by fire is not surrounded by the usual areas that could be used for dispersal because the harvest on industrial forest land does not maintain a prey base. What is left of the activity centers should be left alone to see if the birds recognize old nest sites and return. The survey results of 2003 did not look promising especially within the burn. It was interesting to note that only 1 survey was completed with the second survey resulting in mostly "no response". It would have been nice to have more completed surveys. The scattered information would indicate that owls are in trouble at this time in the watershed. Habitat is now highly fragmented. On pg 3-172 it states, that "Spotted owls are mobile enough that dispersal to adjacent LSRs would not have been seriously inhibited by the wildfire or the subsequent salvaging on non-federal lands". This could be true for adults but juveniles can not fly. No management should take place in the owl activity centers for a few years until survival and nesting is confirmed. Fire breaks could be especially damaging to this species because they contribute to the edge effect of the forest where competitors reside. Give special consideration to dispersal habitat.
b. Other Old Growth Species
- Fisher presence is a very important indicator of the health of late-successional habitat because it requires a closed canopy. BLM should re-survey suitable lands for this species while maintaining as much suitable habitat as possible.
- Red Tree Vole

This is an important prey species for Spotted Owls in late-successional forests. Surveys need to be done for this.

5 PLANTS
A very small percentage of the Elk Creek watershed was surveyed for special status plants(16% in the watershed/10% in the fire perimeter). It was not clear if post fire surveys have been done

at all. Even though fire has changed the vegetative community, surveys should be done before management takes place. Fungi associated with late-successional forests need to be re-surveyed because of their associations with old growth trees.

VI ECONOMICS
As stated earlier, I do not think economic gain should take priority over ecological health of the LSR. However, I was pleased to see economic analysis ie costs associated with the various management plans. I think it is important for the taxpayer to realize what expenses are involved.
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In conclusion, I am of the opinion that the preferred alternative G is too comprehensive both with regard to salvage and restoration projects. Research units, as discussed earlier would be better done on private industrial land or in the AMA. Alternatives B and F have possibilities but have problems that are discussed earlier. Of primary importance for the watershed at this time is road decommissioning and repair and sediment control. Reconsider the volume of salvage so it is a quarter of the present and eliminate ground based yarding systems. Do no restoration projects outside the burn perimeter.

Document Format-The document was comprehensive and contained a lot of information. It is evident that a lot of work went into the preparation. Some of the information was hard to find. Suggested improvements are as follows:
1. A more complete glossary of acronyms
2. A complete list of maps with page numbers
3. All maps of alternatives should have had unit numbers on them with corresponding unit numbers printed in appendix D. Only Alternative E had this information. I was given a soils map with unit numbers when I asked for it. This should have been available as part of the DEIS. It was very useful.
4. The present condition of the land as well as the desired future condition would have been helpful to me for each restoration project proposal as well as resulting canopy closures for all completed projects. Much of this information was available in one place or another but was hard to find.
5. A more complete index

Thank you for allowing me to comment on the DEIS

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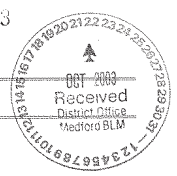

MEMORANDUM

TO: BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT OFFICE
TIMBERED ROCK EIS TEAM
3040 BIDDLE ROAD
MEDFORD, OR 97504

FROM: CARLOS DIAZ, ENVIRONMENTAL RESOURCES ENGINEERING SENIOR, HUMBOLDT STATE UNIVERSITY , cad10@humboldt.edu

SUBJECT: CRITIQUE OF TIMBERED ROCK FIRE SALVAGE AND ELK CREEK WATERSHED RESTORATION DEIS

DATE: 10/12/2003

SUMMARY

Please accept the comments included in this memorandum as a critique of the Timbered Rock Fire Salvage and Elk Creek Watershed Restoration DEIS, prepared by the U.S. Department of the Interior, Bureau of Land Management (BLM). The DEIS stated a public comment deadline of September 30, 2003; however, the Notice of Availability of the DEIS was not published by the EPA in the Federal Register until August 15, 2003. Therefore, you should receive this memorandum within the allowed 60-day comment period.

The DEIS included a fairly thorough public scoping process. The DEIS does not make adequate mention of the Clean Water Act or the TMDL program, although Elk Creek is listed as impaired for temperature and dissolved oxygen on Oregon's 303(d) list. The document failed to discuss the quantitative or qualitative effects of the various alternative proposals on erosion rates and sediment yields to the watershed's streams and creeks. No funds have been appropriated for any of the proposed watershed restoration activities, although salvage timber sales have already been authorized through pending EIS approval.

BACKGROUND

On July 13, 2003, a lightning strike on Timbered Rock triggered a fire that quickly spread within the Elk Creek watershed, located approximately 20 miles east of Medford, Oregon. In response, the U.S. Department of the Interior, Bureau of Land Management (BLM) Medford District Office has prepared the Timbered Rock Fire Salvage and Elk Creek Watershed Restoration Draft Environmental Impact Statement (DEIS). The document proposes two main actions: 1) the

implementation of restoration activities within the Elk Creek watershed, and 2) the harvest of trees killed by the fire to recover their economic value. According to the DEIS, "the Timbered Rock fire created the need:

- To rehabilitate fire damaged landscape;
- To assess changes in late-successional habitat conditions within the Elk Creek Late Successional Reserve (LSR);
- To reevaluate restoration and other actions to enhance or accelerate development of late-successional forest habitat conditions and increase resiliency to disturbance throughout the Elk Creek LSR;
- To assess the possibility of economic recovery of fire-killed trees (salvage) within the fire perimeter, consistent with LSR objectives; and
- To consider conducting research related to post-fire logging." (BLM DEIS, 2003)

The Elk Creek watershed encompasses 85,424 acres, of which 23,866 acres are public lands administered by the BLM. The fire consumed approximately 27,000 acres of mixed public, private, and commercial lands, of which approximately 12,000 acres were BLM administered lands. All BLM public lands within the watershed are designated Late-Successional Reserve (LSR) through the Northwest Forest Plan (NFP) and administered as set forth in the 1995 Medford District Resource Management Plan (RMP). In addition, an Elk Creek Watershed Analysis (WA) was completed in 1995 and the South Cascades Late-Successional Reserve Assessment (LSRA) was completed in 1998.

Proposed watershed restoration activities include, but are not limited to, road decommissioning or improvement, installation of fuel management zones, thinnings to accelerate development of late-successional forest, and wildlife and fisheries habitat improvements. Proposed restoration activities may occur anywhere within the Elk Creek LSR. However, proposed timber salvage activities are confined to BLM administered lands within the fire perimeter. In addition, salvage within all LSR lands are subject to review by the Regional Ecosystem Office (REO).

The DEIS has been prepared among controversy associated with the management of LSRs and surrounding proposals to harvest trees killed by fire to recover their economic value. Preparation of the document was conducted in consideration of recommendations proposed in the LSRA and Elk Creek WA. Through public scoping and internal evaluation, the BLM addressed the following major issues and controversies surrounding the proposed actions in preparation of the DEIS:

- Recovery of the economic value of fire-killed trees,
- Fuel loading within the Elk Creek watershed,
- Coarse woody debris and snag levels,
- Late-successional forest habitat,
- Cumulative effects from the fire and activity on commercial timberlands,
- Road density and delivery of sediment to streams, and
- Threatened or endangered and other sensitive species.

Seven alternatives have been developed, and all respond to the aforementioned major concerns in varying degree and through the use of different combinations of proposed actions. Alternative G has been selected as the Preferred Alternative. Alternative G includes in its proposal a number of research projects to be conducted to assess the effectiveness of restoration and salvage logging activities.

DOCUMENT PREPARATION

The DEIS appears to have followed suggested formatting and addressed the major issues required of such a document. The Notice of Availability of the DEIS was published by the EPA in the Federal Register on August 15, 2003. According to the DEIS, consultations have continued throughout document preparation with several federal agencies: US Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration – Fisheries (NOAA – Fish), US Forest Service (USFS), and US Army Corps of Engineers (USACE). The DEIS mentions scoping conducted throughout preparation of the document and the integration of public input into the identification of issues and development of alternatives. The document makes very clear all efforts made to reach and inform the public and interested parties, and makes available lists of all notified parties.

The USDI BLM is clearly labeled the lead agency on the cover page of the DEIS, along with a responsible official. The preparers of the DEIS are also clearly listed in the Coordination and Consultation section of the DEIS. The preparers seem to represent a variety of disciplines, forming a good interdisciplinary team. Disciplines included an ecosystem planner, geotechnical specialist and environmental engineer, rangeland management specialist, fuels specialist, wildlife biologist, fisheries biologist, forester, GIS specialist, hydrologist, and botanist. Perhaps someone specializing in sediment transport, if not the hydrologist, and a firefighter would have been good additions to the team.

The document is written at a level that the general public should be readily able to understand the document. The different salvaging methods and watershed restoration activities are explained in sufficient detail for comprehension. The Purpose and Need for Action section of the DEIS addresses the relevant legal regulations associated with the proposed activities. However, no space was given to explaining the Total Maximum Daily Load (TMDL) program as set forth in the Clean Water Act, although Elk Creek is listed on Oregon's 303(d) list as impaired for temperature. The public deserves to be informed on how these acts relate to this specific project, what protections they mandate for 303(d) listed creeks containing critical habitat for threatened fish species, and what effects proposed actions will have on temperatures and water quality within the watershed.

The BLM made excellent use of figures, tables, and maps within the DEIS. Maps were available for each proposed watershed restoration, outlining areas within the watershed where the proposed activities would be taking place.

ANALYSIS

The main critique of the DEIS is its failing to mention that Elk Creek is a 303(d) listed creek. The Oregon Department of Environmental Quality (DEQ), as mandated by the federal Clean Water Act (CWA), has listed Elk Creek on its 303(d) list as an impaired water body for temperature and dissolved oxygen in the summer months. These water quality impairments present significant implications to threatened Coho salmon and other anadromous fish species within Elk Creek. It was extremely disappointing to see no mention made of Elk Creek's 303(d) listed status anywhere in the DEIS, nor discussion of the implications of temperature and dissolved oxygen impairments on water quality and threatened species within the Elk Creek watershed. As a result, the needs to improve water quality within the temperature impaired Elk Creek and to protect threatened species that are temperature sensitive were most likely not taken into consideration in the development of the purpose and need statement and the range of alternatives.

Indirect effects of the Timbered Rock fire, not mentioned in the DEIS, will continue to exacerbate temperature and dissolved oxygen impairments within Elk Creek. Accelerated erosion rates can be expected from bare, exposed ground in areas burned by the fire. Increased erosion and sediment delivery to Elk Creek could lead to channel aggradation and channel widening within certain reaches of the stream. These stream channel processes often increase the penetrability of solar radiation within the water column, thereby increasing temperatures. In addition, the Timbered Rock fire probably reduced shade cover along the Elk Creek, also increasing solar radiation on land

and waterways. Temperature increases are also often accompanied by algal blooms, which can significantly impact dissolved oxygen concentrations within water bodies.

Salvage logging and watershed restoration activities should not be considered under the same DEIS because the purpose and need of each are quite different. Due to the 303(d) listed status of Elk Creek, the state of Oregon is mandated by federal law to develop a Total Maximum Daily Load (TMDL) program to implement mitigation measures that address temperature and dissolved oxygen problems within Elk Creek. Watershed restoration activities should occur as recommended in the Elk Creek WA and LSRA, and as mandated by the CWA, in order to restore natural watershed functions and overall health. Although the fire might have increased the severity of water quality problems within the watershed, watershed restoration activities should occur within the Elk Creek watershed regardless of whether salvage logging takes place or not. The proposal to salvage log within the watershed should therefore be considered individually and separately from the proposed watershed restoration activities.

The economics and proposed available budget for the project seem to favor salvage logging over the watershed restoration activities. The DEIS mentions that if the FEIS is approved, timber sales could start as early as summer 2004 as authorized. However, there is no timetable set forth for watershed restoration activities, and their implementation hinges on available appropriated funds. Therefore, watershed restoration activities will occur only if and when funds are available. This is worrisome, since proposed salvage logging and associated activities could potentially coincide with the summer months in which temperature and dissolved oxygen are of most concern within Elk Creek. Watershed restoration activities should take precedent to salvage logging since Elk Creek is 303(d) listed. If implemented prior to salvage logging, the proposed watershed restoration activities could serve as mitigation measures for the salvage logging proposals and their expected impacts on increased sediment erosion and delivery rates.

One of the main differences between alternatives is the extent of salvage logging within the fire perimeter. In the Alternatives section, the DEIS describes these differences. Alternatives A and B propose no salvage logging. Alternatives C, D, and G focus on logging in high and moderate burn severity areas. Alternative E considers high, moderate, low, and very low burn severity areas, while Alternative F follows guidance set forth in Recommendations for Ecologically Sound Post-Fire Salvage Management and Other Post-Fire Treatments on Federal Lands in the West (Beschta et al., 1995) where emphasis is placed on avoidance to the maximum extent practicable of severely burned areas and sites where accelerated and voluminous erosion is possible and likely.

Since high and moderate burn severity areas pose the greatest risk in terms of accelerated erosion and sediment yield to the watershed's streams and creeks, alternatives that propose area salvage logging only on low and very low burn intensity areas should have been considered. Four of the seven alternatives propose logging in these high intensity burn areas, where erosion risks are highest. Although the DEIS mentions that no BLM administered land is rated as severe erosion potential, it is not clear what the sensitivity is that distinguishes between high and sever erosion potentials. Is the BLM proposing salvage logging on high or moderate erosion potential lands? The soil erosion potential map indicates that a large amount of land within the fire perimeter does have severe erosion potential.

The BLM should take advantage and make use of available sediment transport mathematical models to aid in the management and selection of lands for salvage logging. These models could be used to quantify and compare erosion rates and potential for sediment delivery to streams for the various alternatives. The models could also be used to compare erosion rates for different burn intensity areas and to assess the effects of different hydrological conditions within the watershed that might affect erosion rates. With predicted sediment delivery rates to Elk Creek for various alternatives, it would be possible to assess each alternatives effects on temperature, dissolved oxygen, and threatened species within Elk Creek. Mathematical models could be used to select areas for salvage logging that would result in the least amount of erosion and sediment delivery to streams.

Alternatives C – G propose roadside salvage logging within the Timbered Rock fire perimeter to safeguard the public health of road users. Then why are different acreages proposed under the various alternatives? This variability should not exist if public health is at stake. Do some alternatives only salvage high risk trees, while others salvage high and moderate risk trees?

CONCLUSIONS

The DEIS developed for the Timbered Rock Fire Salvage and Elk Creek Watershed Restoration seems to have been prepared within the framework of NEPA, and the DEIS development process seems to have been conducted by an interdisciplinary team of scientists and engineers. The DEIS included a fairly thorough public scoping process. The DEIS does not make adequate mention of the Clean Water Act or the TMDL program, although Elk Creek is listed as impaired for temperature and dissolved oxygen on Oregon's 303(d) list. The document failed to discuss the quantitative or qualitative effects of the various alternative proposals on erosion rates and sediment yields to the watershed's streams and creeks. No funds have been appropriated for any of the proposed

watershed restoration activities, although salvage timber sales have already been authorized through pending EIS approval.

Since erosion risks associated with post-fire conditions in the watershed and the proposed salvage activities would most likely alter sediment yields to various streams and creeks and ultimately negatively affect aquatic organisms as a result from increases in temperatures, mathematical models and risk analysis could be used to assess erosion and sediment delivery risks posed by the various alternatives. Field monitoring and research could also provide valuable information regarding the effects of fire salvage on erosion rates and data for use in and calibration of models. Precautions should also be introduced into the alternatives in the case that monitoring indicates that streams and creeks are being negatively impacted after proposed salvage operations have started. Without these erosion and sediment transport analyses and precautionary measures in place, it is not clear that any of the proposed actions will not negatively impact temperature and dissolved oxygen conditions in an already impaired Elk Creek, home of threatened Coho salmon.

REFERENCES

State of Oregon Department of Environmental Quality (ORDEQ). (2003) The 2002 303(d) List of Impaired Waters in Oregon. [Online] Last updated 2/7/03. Accessed 9/11/03. Available http://www.deq.state.or.us/wq/wqfact/Final2002_303(d)list.pdf.